EUCLID CHEMICAL

The Euclid Chemical Company

CONCRETE & MASONRY

ADMIXTURE AND FIBER PRODUCTS

2019 - 2020

EUCLID CHEMICAL

PROVEN. CONCRETE. SOLUTIONS.

A WORLD OF QUALITY CONCRETE PRODUCTS

For over 100 years, The Euclid Chemical Company has manufactured top quality products formulated to meet the demands of the ever changing concrete and masonry construction industry. Marketed under the Euco, Eucon, Dural, Speed Crete, Increte, Vandex, Sentinel, Tuf-Strand, PSI Fiberstrand and Tamms brand names, Euclid Chemical serves the global building market as an ISO 9001:2008 supplier of specialty products and support services.

The Euclid Chemical Company philosophy of "demonstratively better" is the foundation upon which Euclid Chemical serves and supports its customers. Cutting edge research and development, technical support and service, and an education-driven specification effort along with ongoing customer training provides Euclid Chemical customers with the best products and support in the industry.

Marketed through a network of over 1,200 distributors, ready-mix concrete producers and masonry suppliers, Euclid Chemical products are recognized as the industry standard throughout the world.

As part of our commitment to helping promote sustainable design, Euclid Chemical has many products which contribute to Leadership in Energy and Environmental Design (LEED™) certification. Yet this commitment does not stop at the manufacturing level. Our employees constantly strive to improve the social and environmental impact of company activities while achieving an economic balance.

The technical information contained on these data sheets is subject to change. Please make sure to visit our website for the most up-to-date information on these products.

For information regarding domestic and international availability, call 800-321-7628 or visit euclidchemical.com.

CONCRETE & MASONRY ADMIXTURE AND FIBER PRODUCTS

EUCLID CHEMICAL

ALPHABETICAL INDEX

CATEGORY INDEX

FIBER PRODUCTS

Macro-Synthetic

Micro-Synthetic

Steel

MASONRY/MCP ADMIXTURES

MORTAR ADMIXTURES

MISCELLANEOUS PRODUCTS

Dust Control

Equipment Cleaners

Form Release Agents

Surface & Evaporation Retarders

Grout Fluidifer

SHOTCRETE ACCELERATORS

CONCRETE INDUSTRY REFERENCE INFO

Chloride

ACCELERATORS

Non-Chloride

ACCELGUARD® STANDARD

Accelerating Admixture for Concrete

EUCLID CHEMICAL

Description

ACCELGUARD STANDARD is a chloride based, multi-purpose concrete admixture designed to accelerate the normal setting time of concrete. ACCELGUARD STANDARD improves the plastic and hardened properties of concrete such as workability, compressive and flexural strengths, and freeze-thaw resistance. ACCELGUARD STANDARD densifies concrete and reduces its permeability. ACCELGUARD STANDARD is compatible with water reducing agents and air-entraining agents but should be added separately to the concrete mix.

Primary Applications

- General purpose ready-mixed concrete
- Miscellaneous precast concrete
- Manufactured concrete products

Features/Benefits

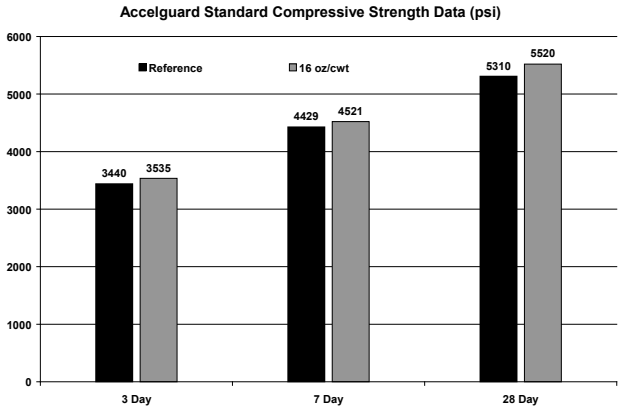
- Reduces initial set time
- Cuts construction costs / no cold weather delays
- Densifies concrete
- Minimizes bleeding and segregation

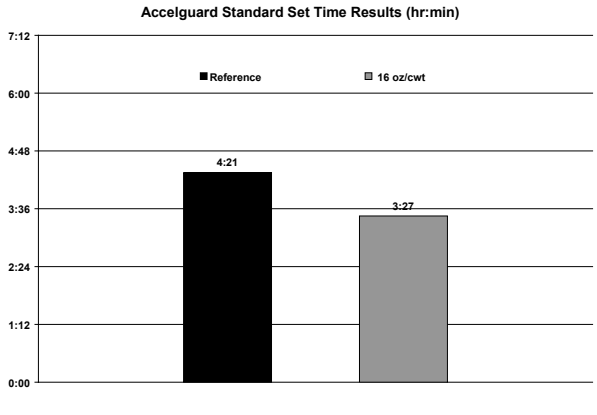
Technical Information

Perfomance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of ACCELGUARD STANDARD.





Packaging

ACCELGUARD STANDARD is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened container.

Specifications/Compliances

- Fully complies with ASTM C 494, Type C
- Fully complies with AASHTO M 194
- HUD Minimum Property Standards 4901.1 Section 503.2
- New York Board of Standards and Appeals Calendar No. 714-72SM

Directions for Use

The typical dosage range for ACCELGUARD STANDARD is 16 - 32 oz per 100 lbs (1040 - 2090 mL/100kg) of cementitous material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

ACCELGUARD STANDARD should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. For ambient temperatures below 50°F (10°C) follow ACI 306 Cold Weather Requirements.

Precautions/Limitations

- Prevent concrete from freezing until a minimum of 1000 psi (7 MPa) is achieved.
- ACCELGUARD STANDARD contains calcium chloride. It is not recommended for use in prestressed, post-tentioned, or structural steel-reinforced concrete.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.19

WARRANTY: The Euclid Chemical Company ("Euclid") solely and expressly warrants that its products shall be free from defects in materials and workmanship for one (1) year from the date of purchase. Unless authorized in writing by an officer of Euclid, no other representations or statements made by Euclid or its representatives, in writing or orally, shall alter this warranty. EUCLID MAKES NO WARRANTIES, IMPLIED OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR ORDINARY OR PARTICULAR PURPOSES OF ITS PRODUCTS AND EXCLUDES THE SAME. If any Euclid product fails to conform with this warranty, Euclid will replace the product at no cost to Buyer. Replacement of any product shall be the sole and exclusive remedy available and buyer shall have no claim for incidental or consequential damages. Any warranty claim must be made within one (1) year from the date of the claimed breach. Euclid does not authorize anyone on its behalf to make any written or oral statements which in any way alter Euclid's installation information or instructions in its product literature or on its packaging labels. Any installation of Euclid products which fails to conform with such installation information or instructions shall void this warranty. Product demonstrations, if any, are done for illustrative purposes only and do not constitute a warranty or warranty alteration of any kind. Buyer shall be solely responsible for determining the suitability of Euclid's products for the Buyer's intended purposes.

ACCELGUARD® HE

Accelerating & Water Reducing Admixture

EUCLID CHEMICAL

Description

ACCELGUARD HE is a water reducing and accelerating admixture for concrete. It improves plastic and hardened properties such as workability, compressive and flexural strengths. ACCELGAURD HE is a chloride based admixture and is compatible with air entraining agents, but should be added separately into the initial batch water of the concrete mixture.

Primary Applications

- Cold weather concreting
- Structural concrete
- Concrete block
- Concrete pipe and many precast items

Features/Benefits

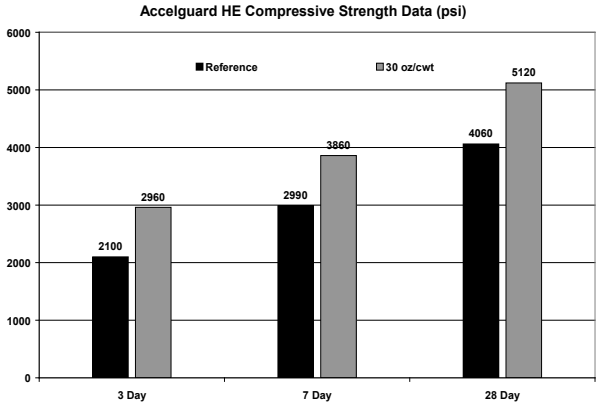
- Reduces initial set
- Provides high early strength for fast form stripping
- Cuts construction cost / no cold weather delays
- Densifies concrete
- Minimizes bleeding and segregation

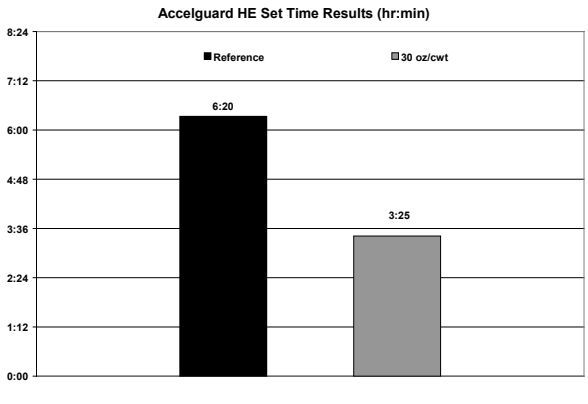
Technical Information

Perfomance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of ACCELGUARD HE.





Packaging

ACCELGUARD HE is available in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened container.

Specifications/Compliances

- ASTM C 494, Type C & E admixture specifications
- AASHTO M 194

Directions for Use

The typical dosage range for ACCELGUARD HE is 16 - 32 oz per 100 lbs (1040 - 2090 mL/100kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

ACCELGUARD HE should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. For ambient temperatures below 50°F (10°C) follow ACI 306 Cold Weather Requirements.

Precautions/Limitations

- Accelguard HE contains calcium chloride. It is **not** recommended for use in prestressed, post-tentioned, or structural steel-reinforced concrete.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.19

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ACCELGUARD® NCA

Non-chloride, Accelerating & Water Reducing Admixture

EUCLID CHEMICAL

Description

ACCELGUARD NCA is an accelerating and water reducing admixture for concrete. It improves properties of plastic and hardened concrete, provides a significant improvement in early stiffening and setting characteristics, improved workability and decreased bleeding and segregation. ACCELGUARD NCA contains no added chlorides or chemicals known to promote the corrosion of steel, is compatible with air-entraining admixtures, HRWR admixtures (super plasticizers), and conventional water reducing admixtures. ACCELGUARD NCA works well at all temperatures but has shown to be most effective in the 35°F to 50°F (2°C to 10°C).

Primary Applications

- Cold weather concreting
- Structural and plain concrete
- Precast and post tensioned concrete

Features/Benefits

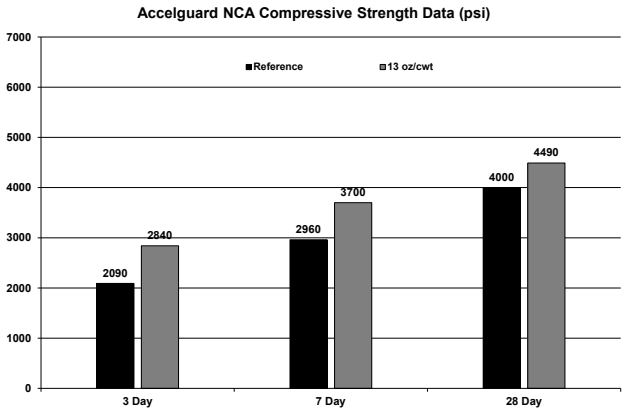
- Reduces initial set 1 to 4 hours depending on concrete temperatures
- Improves workability and provides denser concrete
- Minimizes bleeding and segregation
- Improves compressive strength development at early ages
- Decreases overtime allowing earlier finishing
- Increases protection for reinforcement in concrete
- Decreases concrete form stripping times

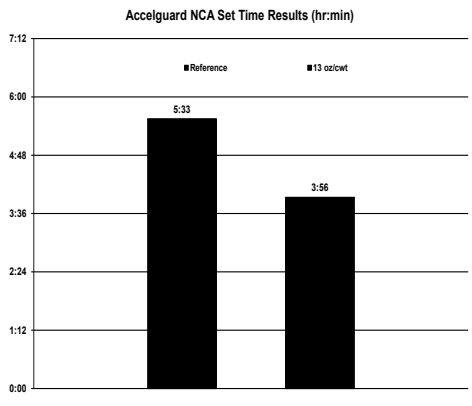
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of ACCELGUARD NCA.





Shelf Life

2 years in original, unopened container.

Packaging

ACCELGUARD NCA is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Specifications/Compliances

- Fully complies with ASTM C 494, Type C and E admixture specifications.
- Fully complies with AASHTO M 194.
- ACI 201, Guide for Durable Concrete and ACI 302 Guide for Concrete Floor and Slab Construction prohibit the use of chlorides in many types of concrete. ACCELGUARD NCA may be used in these types of concrete. Examples of which are: floors over prestressed concrete or galvanized decking, floors containing two kinds of embedded metal, reinforced concrete in moist environments and/or exposed to chloride deicing salts.

Directions for Use

The typical dosage range for ACCELGUARD NCA is 12 - 75 oz per 100 lbs (780 - 4890 mL/100kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

ACCELGUARD NCA should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. For ambient temperatures below 50°F (10°C) follow ACI 306 Cold Weather Requirements.

Precautions/Limitations

- ACCELGUARD NCA will freeze at temperatures of approximately -15°F (-26°C). Freezing and thawing will not harm the material if thoroughly agitated.
- Do not use air for agitation.
- Keep concrete from freezing until a minimum of 500 psi (3.5 MPa) is achieved.
- In all cases, consult the Safety Data Sheet before use.

Rev. 08.19

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ACCELGUARD® 80

Non-chloride, Accelerating & Water Reducing Admixture

EUCLID CHEMICAL

Description

ACCELGUARD 80 is an accelerating and water reducing admixture for concrete that does not contain calcium chloride. It improves properties of plastic and hardened concrete, provides a significant improvement in early stiffening and setting characteristics, improved workability and decreased bleeding and segregation. This admixture is compatible with air-entraining admixtures, HRWR admixtures (super plasticizers), and conventional water reducing admixtures. ACCELGUARD 80 is effective at all temperatures but is particularly effective above 50°F (10°C). ACCELGUARD 80 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Cold weather concreting
- Structural and plain concrete
- Concrete block and mortar
- Precast and post tensioned concrete

Features/Benefits

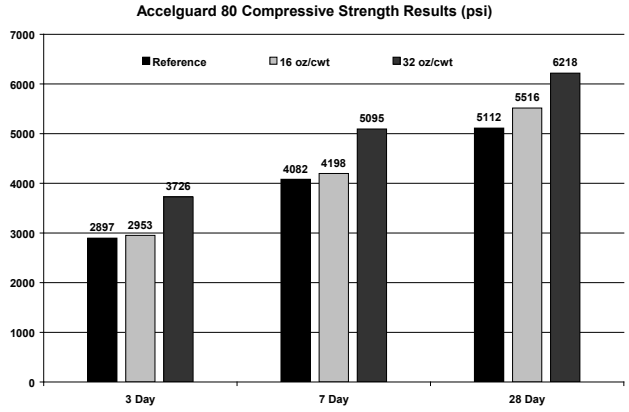
- Reduces initial set 1 to 4 hours depending on concrete temperatures
- Improves workability and provides denser concrete
- Minimizes bleeding and segregation
- Improves compressive strength development at early ages
- Allows earlier finishing
- Increases protection for reinforcement in concrete

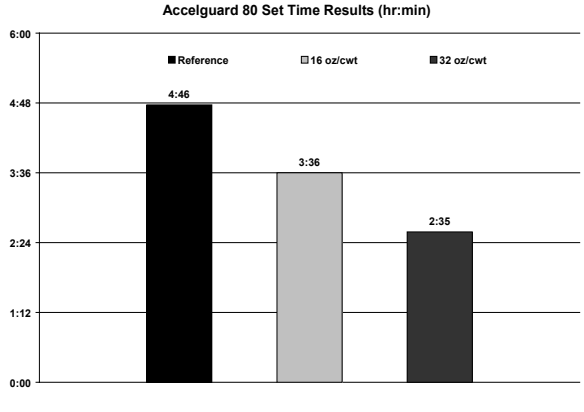
Technical Information

Perfomance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of ACCELGUARD 80.





Packaging

ACCELGUARD 80 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

- Fully complies with ASTM C 494, Type C and E admixture specifications
- Fully complies with AASHTO M 194
- ACI 201, Guide for Durable Concrete and ACI 302 Guide for Concrete Floor and Slab Construction prohibit the use of chlorides in many types of concrete. ACCELGUARD 80 may be used in these types of concrete such as, floors over prestressed concrete or galvanized decking, floors containing two kinds of embedded metal, reinforced concrete in moist environments and/or exposed to chloride deicing salts
- ANSI/NSF STD 61 registered

Directions for Use

The typical dosage range for ACCELGUARD 80 is 12- 90 oz per 100 lbs (780 - 5870 mL/100kg) of cementitous material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

ACCELGUARD 80 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. For ambient temperatures below 50°F (10°C) follow ACI 306 Cold Weather Requirements.

Precautions/Limitations

- ACCELGUARD 80 will freeze at temperatures of approximately -15°F (-26°C). Freezing and thawing will not harm the material if thoroughly agitated.
- Do not use air for agitation.
- Do not dispense directly onto dry cement.
- Do not use ACCELGUARD 80 with modified cements without consulting The Euclid Chemical Company.
- Keep concrete from freezing until a minimum of 500 psi (3.5 MPa) is achieved.
- In all cases, consult the Safety Data Sheet before use.

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ACCELGUARD® 90

Non-chloride, Accelerating & Water Reducing Admixture

EUCLID CHEMICAL

Description

ACCELGUARD 90 is a ready to use, accelerating and water reducing liquid admixture for concrete. It increases early strength at low temperatures and is especially effective in extremely cold temperatures as low as 20°F (-7°C) when using a cold weather admixture system. ACCELGUARD 90 will also increase workability and reduce bleeding and segregation. This product is compatible with most other admixtures commonly used in conventional concrete. ACCELGUARD 90 is effective in concrete of any temperature and is particularly effective in freeze-resistant concrete admixture systems. ACCELGUARD 90 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Cold weather / freeze resistent concrete
- Structural and plain concrete
- Precast and post tensioned concrete

Features/Benefits

- Reduces initial set 1 to 6 hours depending on concrete temperatures
- Cuts construction costs - concrete placing cycle is accelerated
- Improves workability and provides denser concrete
- Minimizes bleeding and segregation
- Improves compressive strength development at early ages
- Decreases overtime allowing same day finishing

Technical Information

Technical Information

Mild Weather

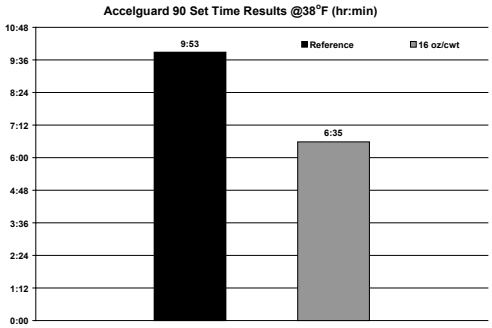
Mix Data

Type I cement, lb/yd³ (kg/m³)	517 (306)
Air content	7% (± 1)
Ambient temperature	73° F (22.8°C)
Concrete temperature	73° F (22.8°C)
Accelguard 90 dose	10 oz/cwt (650 mL/100 kg)

Cold Weather

Mix data

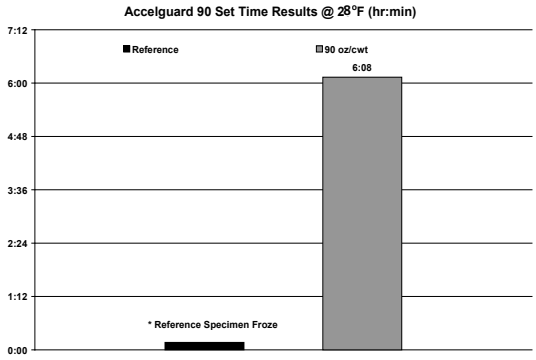
Type I cement, lb/yd³ (kg/m³)	517 (306)
Air content	7% (± 1)
Ambient temperature	38° F (3.3°C)
Concrete temperature	47° F (8.3°C)
Accelguard 90 dose	16 oz/cwt (1040 mL/100 kg)



Sub-Freezing Weather

Mix data

Type I cement, lb/yd³ (kg/m³)	517 (306)
Air content	7% (± 1)
Ambient temperature	28° F (-3.3°C)
Concrete temperature	38° F (8.3°C)
Accelguard 90 dose	90 oz/cwt (5870 mL/100 kg)



Packaging

ACCELGUARD 90 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

- Fully complies with ASTM C 494, Type C and E admixture specifications.
- AASHTO M 194
- Tested using the specifications from ASTM C 1622 for cold weather admixture systems.
- ACI 201, Guide for Durable Concrete, and ACI 302 Guide for Concrete Floor and Slab Construction prohibit the use of chlorides in many types of concrete. ACCELGUARD 90 may be used in these types of concrete such as: floors over pre-stressed concrete, reinforced concrete in moist environments and/or exposed to chloride deicing salts.

Directions for Use

ACCELGUARD 90 is typically used at dosages of 10 to 90 oz per 100 lbs (650 to 5870 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

ACCELGUARD 90 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. For ambient temperatures below 50°F (10°C) follow ACI 306 Cold Weather Requirements. If conditions exist that require freeze resistant concrete systems using Euclid Chemical admixtures, contact your local Euclid Chemical sales representative for proper recommendations.

Precautions/Limitations

- Keep concrete from freezing until a minimum of 500 psi (3.5 MPa) is achieved.
- ACCELGUARD 90 will freeze at temperatures of approximately -15°F (-26°C). Freezing and thawing will not harm the material if thoroughly agitated.
- In all cases, consult the Safety Data Sheet before use.

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ACCELGUARD® G3

Non-chloride, Accelerating & Water Reducing Admixture

EUCLID CHEMICAL

Description

ACCELGUARD G3 is a ready to use, accelerating and water reducing liquid admixture for use in ready mix, precast and post tensioned concrete. It increases early strength at low temperatures and is effective in extremely cold temperatures as low as 20°F (-7°C) using a cold weather admixture system. ACCELGUARD G3 also will increase workability of the concrete and reduces bleeding and segregation. This product is compatible with most other admixtures commonly used in conventional concrete although testing is recommended when using in conjunction with admixtures that contain naphthalene. ACCELGUARD G3 is effective in concrete of any temperature, particularly in freeze-resistant concrete admixture systems and contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Cold weather concrete
- Structural and plain concrete
- Precast and post tensioned concrete
- Architectural concrete
- Mining and underground concrete
- Shotcrete Applications

Features/Benefits

- Reduces initial and final set
- Cuts construction costs
- Improves workability
- Improves early age compressive strength

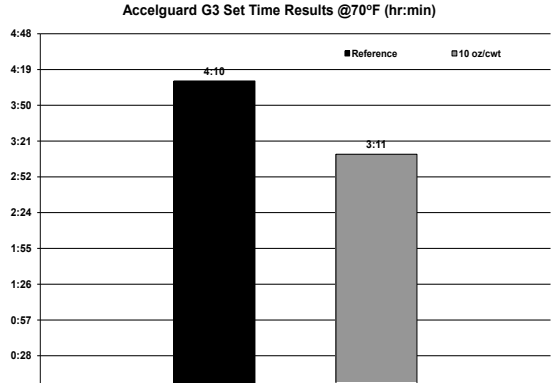
Technical Information

Technical Information

Mild Weather

Mix Data

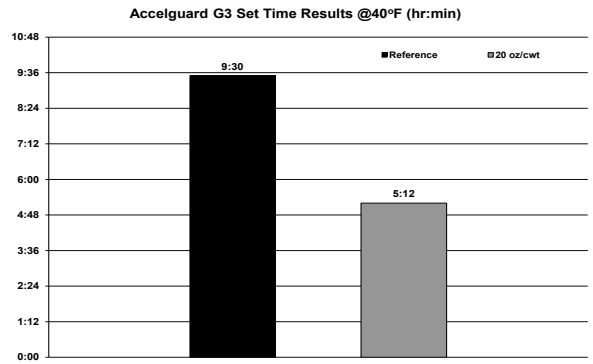
Type I cement	517 lb/yd³ (306 kg/m³)
Air content	7% (± 1)
Ambient temperature	70° F (21.1°C)
Concrete temperature	70° F (21.1°C)
Accelguard G3 dose	10 oz/cwt (650 mL/100 kg)



Cold Weather

Mix data

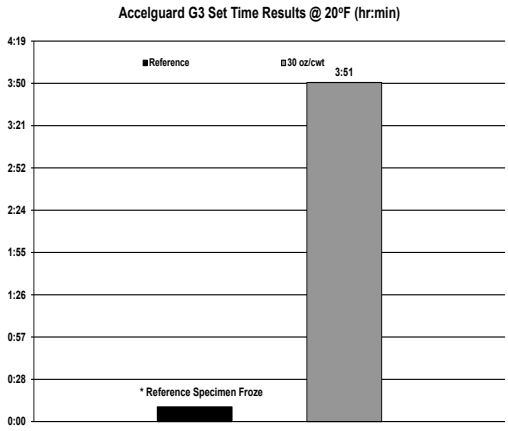
Type I cement	517 lb/yd³ (306 kg/m³)
Air content	7% (± 1)
Ambient temperature	40° F (4.4°C)
Concrete temperature	60° F (15.6°C)
Accelguard G3 dose	20 oz/cwt (1300 mL/100 kg)



Sub-Freezing Weather

Mix data

Type I cement	517 lb/yd³ (306 kg/m³)
Air content	7% (± 1)
Ambient temperature	20° F (-6.7°C)
Concrete temperature	60° F (15.6°C)
Accelguard G3 dose	30 oz/cwt (1960 mL/100 kg)



Packaging

ACCELGUARD G3 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

- Fully complies with ASTM C 494, Type C and E admixture specifications.
- AASHTO M 194.
- Tested using the specifications from ASTM C 1622 for cold weather admixture systems.
- ACI 201, Guide for Durable Concrete, and ACI 302 Guide for Concrete Floor and Slab Construction prohibit the use of chlorides in many types of concrete. ACCELGUARD G3 may be used in these types of concrete such as: floors over pre-stressed concrete, reinforced concrete in moist environments and/or exposed to chloride deicing salts.

Directions for Use

ACCELGUARD G3 is typically used at dosages of 10 to 90 oz per 100 lbs (650 to 5870 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

ACCELGUARD G3 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. For ambient temperatures below 50°F (10°C) follow ACI 306 Cold Weather Requirements. If conditions exist that require freeze resistant concrete systems using Euclid Chemical admixtures, contact your local Euclid Chemical sales representative for proper recommendations.

Precautions/Limitations

- Protect concrete from freezing until a minimum of 500 psi (3.5 MPa) is achieved.
- ACCELGUARD G3 will freeze at temperatures of approximately -15°F (-26°C). Freezing and thawing will not harm the material if thoroughly agitated.
- In all cases, consult the Safety Data Sheet before use.

Rev. 08.19

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ACCELGUARD® ACN 200

Non-chloride, Accelerating & Water-reducing Admixture

EUCLID CHEMICAL

Description

ACCELGUARD AcN 200 is an accelerating, water-reducing admixture for concrete. It improves properties of plastic and hardened concrete, provides a significant improvement in early stiffening and setting characteristics, improves workability and decreases bleeding and segregation. This complex, high performance admixture performs well under severe cold conditions allowing projects to stay on schedule and contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Cold weather concreting
- Structural and plain concrete
- Wetcast/precast concrete products

Features/Benefits

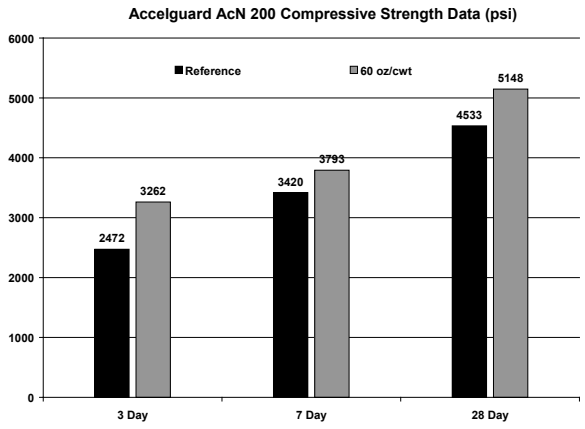
- Reduces initial set 1 to 4 hours depending on concrete temperatures
- Improves workability and provides denser concrete
- Minimizes bleeding and segregation
- Improves compressive strength development at early ages
- Decreases overtime allowing earlier finishing
- Eliminates the need for Type III cement

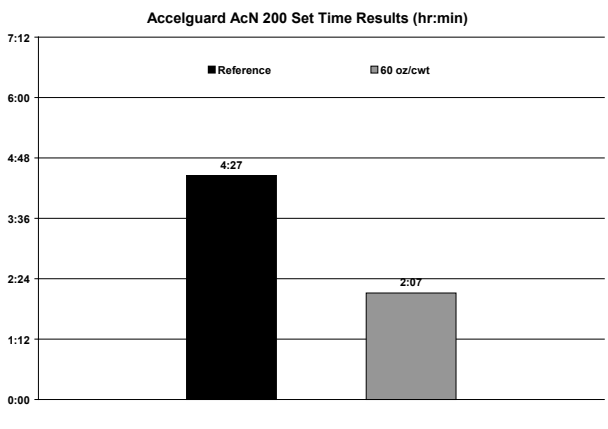
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of ACCELGUARD AcN 200.





Packaging

ACCELGUARD AcN 200 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

- Complies with ASTM C 494, Type C and E admixture specifications.
- Complies with AASHTO M 194.
- ACI 201, Guide for Durable Concrete and ACI 302 Guide for Concrete Floor and Slab Construction prohibit the use of chlorides in many types of concrete. ACCELGUARD AcN 200 may be used in these types of concrete such as, floors over prestressed concrete or galvanized decking, floors containing two kinds of embedded metal, reinforced concrete in moist environments and/or exposed to chloride de-icing salts.

Directions for Use

The typical dosage range for ACCELGUARD AcN 200 is 10 - 60 oz per 100 lbs (650 - 3910 mL/100kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

ACCELGUARD AcN 200 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. For ambient temperatures below 50°F (10°C) follow ACI 306 Cold Weather Requirements.

Precautions/Limitations

- ACCELGUARD AcN 200 will freeze at temperatures of approximately -15°F (-26°C). Freezing and thawing will not harm the material if thoroughly agitated.
- Do not use air for agitation.
- Keep concrete from freezing until a minimum of 500 psi (3.5 MPa) is achieved.
- In all cases, consult the Safety Data Sheet before use.

Rev. 08.19

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RETARDERS

EUCON™ RETARDER 75

Water Reducing and Set Controlling Admixture

EUCLID CHEMICAL

Description

EUCON RETARDER 75 is a synthetically produced liquid water reducing and set retarding admixture for concrete. It will improve the plastic and hardened properties when added to a concrete mix. EUCON RETARDER 75 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Prestressed concrete
- Concrete requiring water reduction and set time control
- Architectural concrete
- Hot weather concrete placement

Features/Benefits

Plastic Concrete

- Retards setting characteristics
- Improves finishability
- Improves workability
- Reduces water requirements
- Reduces segregation

Hardened Concrete

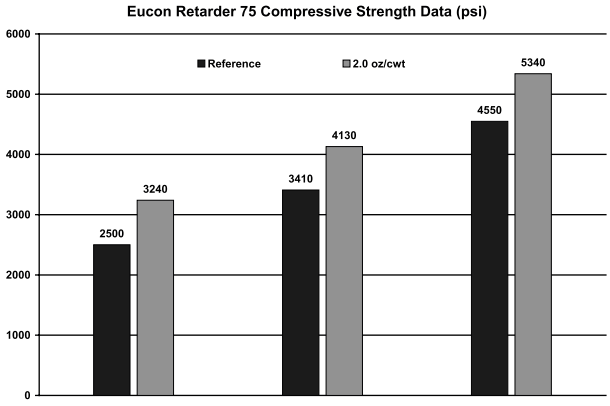
- Increases strengths
- Improves finished appearance
- Reduces cracking
- Reduces permeability
- Non staining

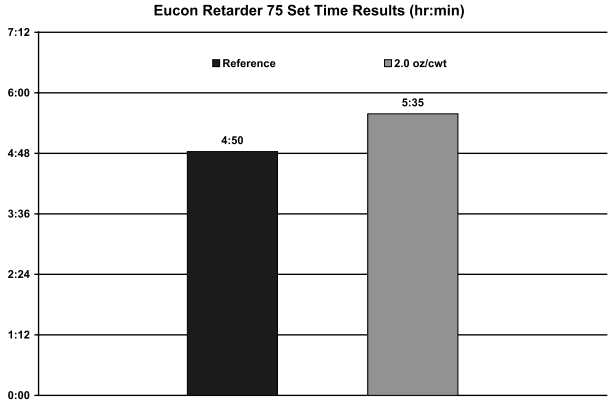
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C494. Changes in materials and mix designs can affect the dosage response of EUCON RETARDER 75.





Packaging

EUCON RETARDER 75 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

- ASTM C 494, Types B & D
- AASHTO M 194
- ANSI/NSF STD 61

Directions for Use

EUCON RETARDER 75 is normally used at dosages of 2 to 5 oz per 100 lb (130 to 330 ml per 100 kg) of cementitious material. Depending on the application, higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON RETARDER 75 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON RETARDER 75 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before sue.

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EUCON™ RETARDER 100

Water Reducing - Extended Set Controlling Retarder

EUCLID CHEMICAL

Description

EUCON RETARDER 100 is a synthetically produced liquid water-reducing and set retarding admixture for concrete. It is a modified sodium gluconate. EUCON RETARDER 100 may be used at varying dosage rates to achieve extended set times compared to a control mix of up to 30 hours. EUCON RETARDER 100 contains no added chlorides or chemicals known to promote the corrosion of steel and is compatible with air-entraining agents, water reducers and accelerators.

Primary Applications

- Prestressed concrete
- Concrete requiring water reduction and set time control
- Architectural concrete
- Hot weather concrete placement

Features/Benefits

Plastic Concrete

- Retards setting characteristics
- Improves finishability
- Improves workability
- Reduces water requirements
- Reduces segregation

Hardened Concrete

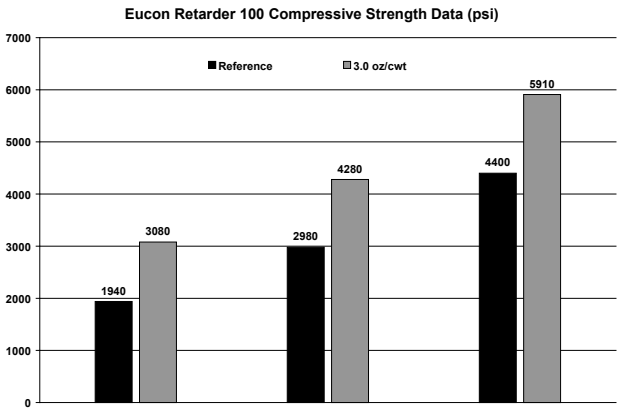
- Increases strengths
- Improves finished appearance
- Reduces cracking
- Reduces permeability
- Non staining

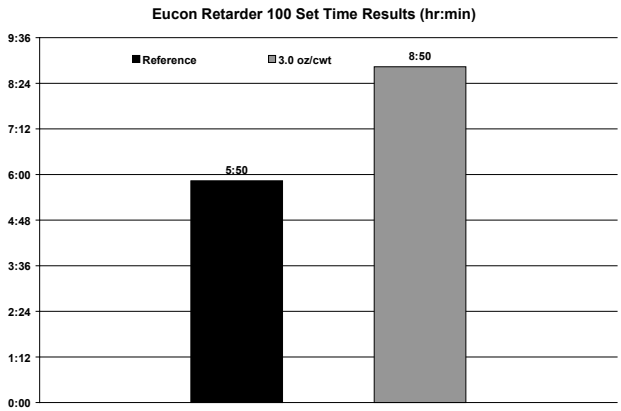
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON RETARDER 100.





Packaging

EUCON RETARDER 100 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums or 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

EUCON RETARDER 100 meets or exceeds the requirements of:

- ASTM C 494, Type B & D
- AASHTO M 194
- CSA Standard CAN3 A266.2-M78

Directions for Use

EUCON RETARDER 100 is normally used at dosages of 2 to 6 oz per 100 lb (130 to 390 ml per 100 kg) of cementitious material, depending on the application. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON RETARDER 100 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON RETARDER 100 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ LR

Water Reducing and Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON LR is a water reducing and set retarding admixture for concrete. This versatile admixture will help produce predictable concrete and provide the right amount of retardation when it is required. EUCON LR shows improved finishing characteristics when compared to untreated concrete. EUCON LR contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- Architectural concrete
- General purpose ready mixed concrete
- Mass concrete
- Bridge decks
- Hot weather concreting

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Extends setting times

Hardened Concrete

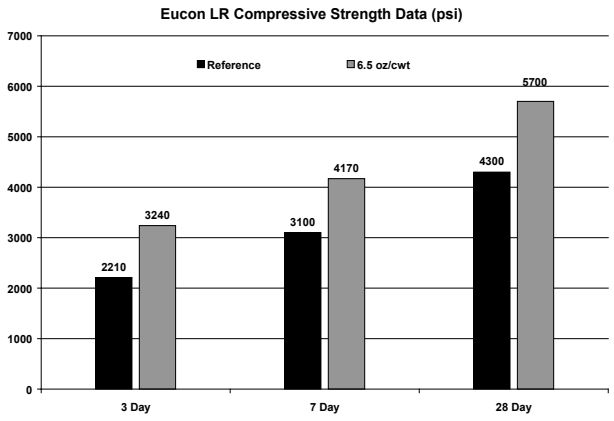
- Increases compressive strength
- Reduces permeability
- Improves finished appearance
- Reduces shrinkage
- Increases durability
- Non staining

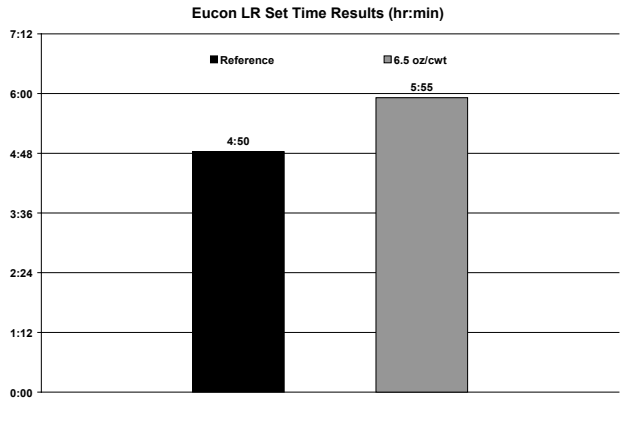
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON LR.





Packaging

EUCON LR is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

EUCON LR meets or exceeds the requirements of:

- ASTM C 494, Type A and Type D
- AASHTO M 194

Directions for Use

EUCON LR is normally used at dosages of 3 to 10 oz per 100 lb (200 to 650 ml per 100 kg) of cementitious material, depending on the application. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON LR should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON LR above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ NR

Water Reducing and Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON NR is a water reducing and set retarding admixture for concrete. This versatile admixture will help produce predictable concrete and provide the right amount of retardation for mixing, transporting, placing and finishing. EUCON NR reduces "water of convenience" which will reduce shrinkage, increase compressive strengths and reduce permeability. EUCON NR contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- Architectural concrete
- General purpose ready mixed concrete
- Mass concrete
- Bridge decks
- Hot weather concreting

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Extends setting times

Hardened Concrete

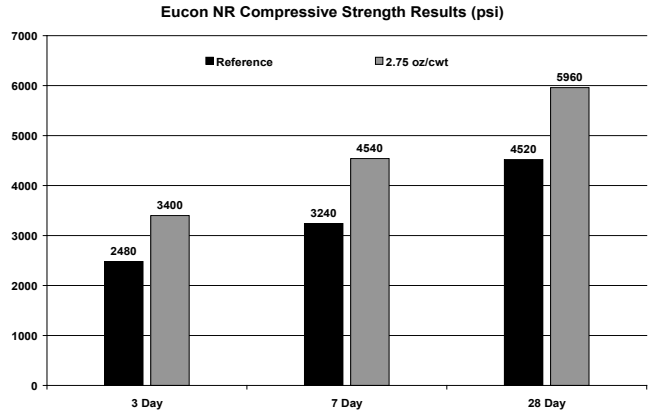
- Increases compressive strength
- Reduces permeability
- Improves finished appearance
- Reduces shrinkage
- Increases durability
- Non-staining

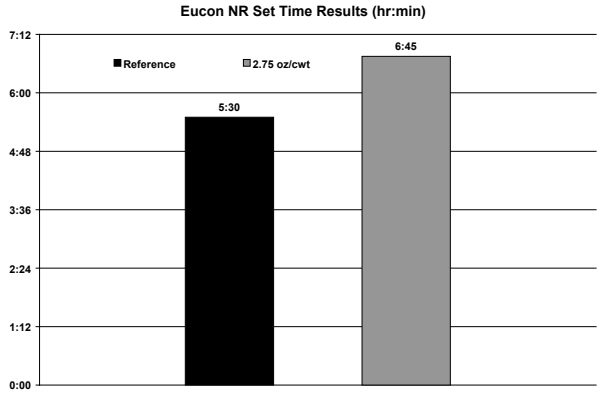
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON NR.





Packaging

EUCON NR is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

EUCON NR meets or exceeds the requirements of:

- ASTM C 494, Types A & D
- AASHTO M 194

Directions for Use

EUCON NR is normally used at dosages of 2 to 8 oz per 100 lb (130 to 520 ml per 100 kg) of cementitious material, depending on the application. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON NR should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON NR above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ 727

Water Reducing and Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON 727 is a water reducing and set retarding admixture for concrete. Specifically formulated with strong set retarding and strength enhancing ingredients that ensure better developed strength and durability for concrete. EUCON 727 contains no added chlorides or chemicals known to promote the corrosion of steel and is particularly suited for warm weather conditions and concrete mixes with high cementitious material content.

Features/Benefits

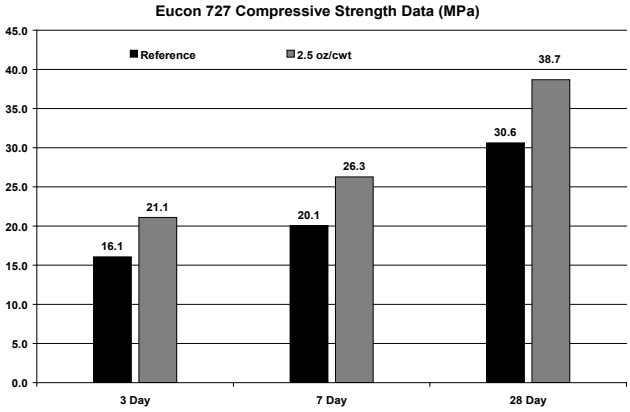
- Reduces water requirements from 4 - 8% depending on dosage and cementitious material characteristics.
- Synergistic properties when used in conjunction with EUCON WR-75, EUCON WR or EUCON DX
- Helps to control concrete setting time in hot weather.
- Has a mostly neutral effect on air content
- Extends initial setting time of concrete
- Generally increases compressive strengths from 15 - 25%

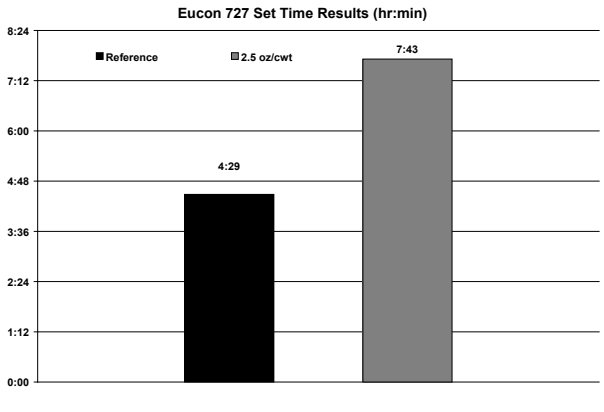
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON 727.





Packaging

EUCON 727 is available in bulk as well as in containers of 1000, 205 or 20 L.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

- ASTM C494 Type D.
- Approved by the Quebec and Ontario Ministry of Transportation.

Directions for Use

EUCON 727 should ideally be introduced in the mix a few seconds after the water reducer or cementitious-water contact if used without another water reducer. This will ensure a better reaction with the cementitious material particles and then maximize the retardation effect. It should not be in direct contact with dry cement. Always add independently of other admixtures.

The dosage varies upon the desired effect, the cementitious material (quantity, type and source), concrete and ambient temperatures. Also, the dosage could vary if EUCON 727 is used in conjunction with another water reducing admixture.

Set retarding, Type D : 130 mL/100 kg of cementitious material.

Example: Addition rate of 50 mL/100 kg of cementitious material of EUCON 727 in a concrete mix that already contains a water reducer can retard setting time from 1 to 3 hours, depending on the characteristics of the cementitious material. EUCON 727 used alone at a dosage of 175 mL/100 kg of cementitious material will extend setting time for 2 to 3 hours when compared to a mix without any admixture, depending on the characteristics of the cementitious material.

The effect of the total dosage should be verified with a trial mix prior to job site pours. Contact your EUCLID representative to get more information for the use of EUCON 727.

Precautions/Limitations

- Keep EUCON 727 from freezing
- Do not dispense onto dry cement
- EUCON 727 is not W.H.M.I.S. regulated
- In all cases, consult Safety Data Sheet before use

Rev. 01.19

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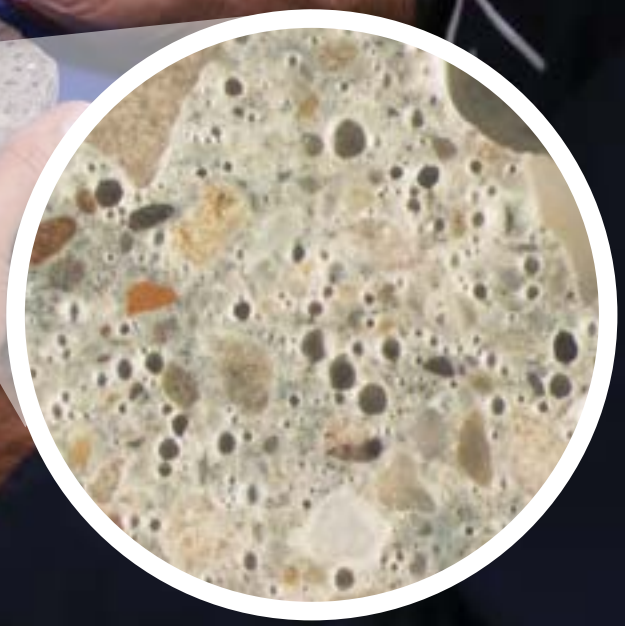
AIR ENTRAINERS



EUCON™ AEA-92

Air Entraining Agent For Concrete

EUCLID CHEMICAL

Description

EUCON AEA-92 is formulated for use as an air entraining admixture for concrete of all types and is manufactured under rigid control which assures uniform and precise performance. It should be added to the mix independently and not with other admixtures. EUCON AEA-92 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Structural concrete
- Mass concrete
- Paving concrete
- All exterior concrete

Features/Benefits

- Provides a stable air void system with proper bubble size and spacing. This air void system protects concrete against damage caused by repeated freeze / thaw cycles
- Concrete is made more resistant to de-icing salts, sulfate attack and corrosive water
- Less mixing water can be used per yard (meter) of concrete and placeability is improved
- Minimizes bleeding and segregation of the concrete

Technical Information

EUCON AEA-92 is an aqueous solution compound of synthetic organic chemicals. It is compatible with concrete mixes containing accelerators, water reducing admixtures, retarding admixtures, or high range water reducers.

Packaging

EUCON AEA-92 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

EUCON AEA-92 meets or exceeds the requirements of the following specifications:

- Corps of Engineers Specification CRD C-13
- ASTM Specification C 260
- AASHTO Specification M 154
- ANSI/NSF STD 61

Directions for Use

EUCON AEA-92 is typically dosed at a rate of 0.1 to 4 oz per 100 lbs (6 to 260 mL per 100 kg) of total cementitious material to entrain 3% - 6% air content. The amount of EUCON AEA-92 will vary depending on type of cement, fineness of sand, temperature, design of the mix, other admixtures, etc. Concrete mixes must be tested regularly to confirm that proper air content is achieved. EUCON AEA 92 should be added directly to the sand to achieve maximum performance.

Precautions/Limitations

- Protect EUCON AEA-92 from freezing.
- Consult your local Euclid Chemical representative for the proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- Add to the mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ AEA-92S

Air Entraining Agent For Concrete

EUCLID CHEMICAL

Description

EUCON AEA-92S is formulated for use as an air entraining admixture for concrete of all types and is manufactured under rigid control which assures uniform and precise performance. It should be added to the mix independently and not with other admixtures. EUCON AEA-92S contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Structural concrete
- Mass concrete
- Paving concrete
- All exterior concrete

Features/Benefits

- Provides a stable air void system with proper bubble size and spacing. This air void system protects concrete against damage caused by repeated freeze/thaw cycles
- Concrete is made more resistant to de-icing salts, sulfate attack and corrosive water
- Less mixing water can be used per yard (meter) of concrete and placeability is improved
- Minimizes bleeding and segregation of the concrete

Technical Information

EUCON AEA-92S is an aqueous solution compound of organic chemicals. It is compatible with concrete mixes containing other commonly used Euclid Chemical Company admixtures.

Packaging

EUCON AEA-92S is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

EUCON AEA-92S meets or exceeds the requirements of the following specifications:

- Corps of Engineers Specification CRD C-13
- ASTM Specification C 260
- AASHTO Specification M 154
- ANSI/NSF STD 61

Directions for Use

EUCON AEA-92S is typically dosed at a rate of 0.5 to 2 oz per 100 lbs (30 to 130 mL per 100 kg) of total cementitious material to entrain 3% - 6% air content. The amount of EUCON AEA-92S will vary depending on type of cement, fineness of sand, temperature, design of the mix, other admixtures, etc. Concrete mixes must be tested regularly to confirm that proper air content is achieved. EUCON AEA-92S should be added directly to the sand to achieve maximum performance.

Precautions/Limitations

- Protect EUCON AEA-92S from freezing.
- Consult your local Euclid Chemical representative for the proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- Add to the mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ AIR MAC6

Air Entraining Agent For Concrete

EUCLID CHEMICAL

Description

EUCON AIR MAC6 is formulated for use as an air entraining admixture for concrete of all types and is manufactured under rigid control which assures uniform and precise performance. EUCON AIR MAC6 adds microscopic air bubbles in concrete and is acceptable to use in all types of concrete, including mixtures that have been traditionally difficult to entrain air. EUCON AIR MAC6 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Structural concrete
- Mass concrete
- Paving concrete
- All exterior concrete subjected to freeze / thaw cycles

Features/Benefits

- Provides a stable air void system with proper bubble size and spacing.
- Improved air-void system protects concrete against damage caused by repetitive freeze/thaw cycles.
- Concrete is made more resistant to de-icing salts, sulfate attack and corrosive water.
- Reduces bleeding and segregation of concrete.
- Less mixing water can be used per yard (meter) of concrete with improved placeability.

Technical Information

Typical Engineering Data

Specific Gravity..... 1.006

% of solids by weight..... 7.5

pH..... 11.0

EUCON AIR MAC6 is an aqueous solution compound of synthetic chemicals. It is compatible with the full range of Euclid admixtures and concrete mixes containing accelerators, water reducing admixtures, retarding admixtures, and high range water reducers.

Packaging

EUCON AIR MAC6 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

EUCON AIR MAC6 meets or exceeds the requirements of the following specifications:

- ASTM Specification C 260
- AASHTO Specification M 154
- ANSI/NSF STD 61

Directions for Use

EUCON AIR MAC6 typically is dosed at a rate of 0.1 to 4.0 oz per 100 lbs (6 to 260 mL per 100 kg) of total cementitious material. The amount of EUCON AIR MAC6, to achieve a desired air content, will vary depending on type of cement, fineness of sand, ambient air and concrete temperature, design of the mix, other admixtures, type of mixing equipment, etc. Concrete mixes must be tested regularly to confirm that proper air content is achieved. EUCON AIR MAC6 should be added with the initial batch water or directly to the sand to achieve maximum efficiency.

Precautions/Limitations

- Consult your local Euclid Chemical representative for proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- Add to the mix independent of other admixtures.
- Protect EUCON AIR MAC6 from freezing.
- Do not agitate using air or an air lance.
- Excessive air entrainment will lower flexural and compressive strengths so frequent testing is recommended.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ AIR MAC12

Air Entraining Agent For Concrete

EUCLID CHEMICAL

Description

EUCON AIR MAC12 is formulated for use as an air entraining admixture for concrete of all types and is manufactured under rigid control which assures uniform and precise performance. EUCON AIR MAC12 adds microscopic air bubbles in concrete and is acceptable to use in all types of concrete, including mixtures that have been traditionally difficult to entrain air. EUCON AIR MAC12 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Structural concrete
- Mass concrete
- Paving concrete
- All exterior concrete subjected to freeze/thaw cycles

Features/Benefits

- Provides a stable air void system with proper bubble size and spacing.
- Improved air void system protects concrete against damage caused by repetitive freeze/thaw cycles.
- Concrete is made more resistant to de-icing salts, sulfate attack and corrosive water.
- Reduces bleeding and segregation of concrete.
- Less mixing water can be used per yard (meter) of concrete with improved placeability.

Technical Information

Typical Engineering Data

Specific Gravity..... 1.01

% of solids by weight..... 15.0

pH..... 11.0

EUCON AIR MAC12 is an aqueous solution compound of synthetic chemicals. It is compatible with the full range of Euclid admixtures and concrete mixes containing accelerators, water reducing admixtures, retarding admixtures and high range water reducers.

Packaging

EUCON AIR MAC12 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

EUCON AIR MAC12 meets or exceeds the requirements of the following specifications:

- ASTM Specification C 260
- AASHTO Specification M 154
- ANSI/NSF STD 61

Directions for Use

EUCON AIR MAC12 typically is dosed at a rate of 0.1 to 4.0 oz per 100 lbs (6 to 260 mL per 100 kg) of total cementitious material. The amount of EUCON AIR MAC12, to achieve a desired air content, will vary depending on type of cement, fineness of sand, ambient air and concrete temperature, design of the mix, other admixtures, type of mixing equipment, etc. Concrete mixes must be tested regularly to confirm that proper air content is achieved. EUCON AIR MAC12 should be added with the initial batch water or directly to the sand to achieve maximum efficiency.

Precautions/Limitations

- Consult your local Euclid Chemical representative for proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- Add to the mix independent of other admixtures.
- Protect EUCON AIR MAC12 from freezing.
- Do not agitate using air or an air lance.
- Excessive air entrainment will lower flexural and compressive strengths so frequent testing is recommended.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ AIR MIX

Air Entraining Agent For Concrete

EUCLID CHEMICAL

Description

EUCON AIR MIX is an aqueous solution of highly purified vinsol resin. EUCON AIR MIX is specifically formulated for use as an air entraining admixture for concrete of all types and is manufactured under rigid control which assures uniform and precise performance. It is compatible with concrete mixes containing accelerators, water reducing admixtures and high range water reducing admixtures. EUCON AIR MIX contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mixed concrete
- Mass concrete construction
- Paving concrete
- Structural concrete
- Exterior concrete work exposed to freeze/thaw conditions

Features/Benefits

- Concrete is made more resistant to de-icing salts, sulfate attack and corrosive water
- Less mixing water can be used per yard (meter) of concrete and placeability is improved
- Minimizes bleeding and segregation

Packaging

EUCON AIR MIX is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

EUCON AIR MIX meets or exceeds the requirements of the following specifications:

- Corps of Engineers Specification CRD C-13
- ASTM Specification C 260
- AASHTO Specification M 154

Directions for Use

EUCON AIR MIX is typically dosed at a rate of 0.5 to 1 oz per 100 lbs (30 to 65 mL per 100 kg) of total cementitious material to entrain 3% - 6% air content. The amount of EUCON AIR MIX will vary depending on type of cement, fineness of sand, temperature, design of the mix, other admixtures, etc. Concrete mixes must be tested regularly to confirm that proper air content is achieved. EUCON AIR MIX should be added directly to the sand to achieve maximum performance.

Precautions/Limitations

- Consult your local Euclid Chemical representative for the proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- If material has frozen, warm material to 70°F (21°C) and agitate for 6 to 8 hours.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ AIR MIX 200

Concentrated Air Entraining Agent For Concrete

EUCLID CHEMICAL

Description

EUCON AIR MIX 200 is a concentrated aqueous solution of modified resins used for proper air control under a wide range of temperatures. EUCON AIR MIX 200 is specifically formulated for use as an air entraining admixture for concrete of all types and is manufactured under rigid control which assures uniform and precise performance. It is compatible with concrete mixes containing accelerators, water reducing admixtures and high range water reducing admixtures. It should be added to the mix independently and contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mixed concrete
- Structural concrete
- Mass concrete construction
- Paving concrete
- Exterior concrete work exposed to freeze/thaw conditions

Features/Benefits

- Provides a stable air void system with proper bubble size and spacing. This air void system protects concrete against damage caused by repeated freeze/thaw cycles
- Concrete is made more resistant to de-icing salts and sulfate attack
- Less mixing water can be used per yard (meter) of concrete and placeability is improved
- Minimizes bleeding and segregation

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

EUCON AIR MIX 200 meets or exceeds the requirements of the following specifications:

- ASTM C 260
- AASHTO M 154

Directions for Use

EUCON AIR MIX 200 is typically dosed at a rate of 0.5 to 1 oz per 100 lbs (30 to 65 mL per 100 kg) of total cementitious material to entrain 3% - 6% air content. The amount of EUCON AIR MIX 200 will vary depending on type of cement, fineness of sand, temperature, design of the mix, other admixtures, etc. Concrete mixes must be tested regularly to confirm that proper air content is achieved.

Precautions/Limitations

- Consult your local Euclid Chemical representative for the proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- If material has frozen, warm material to 70°F (21°C) and agitate for 6 to 8 hours.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ AIR MIX 250

Air Entraining Agent For Concrete

EUCLID CHEMICAL

Description

EUCON AIR MIX 250 is an aqueous solution of modified resins used for proper air control under a wide range of temperatures. EUCON AIR MIX 250 is specifically formulated for use as an air entraining admixture for concrete of all types and is manufactured under rigid control which assures uniform and precise performance. It is compatible with concrete mixes containing other commonly used Euclid Chemical Company admixtures. It should be added to the mix independently and not with other admixtures.

Primary Applications

- Ready mixed concrete
- Structural concrete
- Mass concrete construction
- Paving concrete
- Exterior concrete work exposed to freeze/thaw conditions

Features/Benefits

- Provides a stable air void system with proper bubble size and spacing. This air void system protects concrete against damage caused by repeated freeze/thaw cycles
- Concrete is made more resistant to de-icing salts and sulfate attack
- Less mixing water can be used per yard (meter) of concrete and placeability is improved
- Minimizes bleeding and segregation

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

EUCON AIR MIX 250 meets or exceeds the requirements of the following specifications:

- ASTM C 260
- AASHTO M 154

Directions for Use

EUCON AIR MIX 250 is typically dosed at a rate of 0.75 to 1.5 oz per 100 lbs (50 to 100 mL per 100 kg) of total cementitious material to entrain 3% - 6% air content. The amount of EUCON AIR MIX 250 will vary depending on type of cement, fineness of sand, temperature, design of the mix, other admixtures, etc. Concrete mixes must be tested regularly to confirm that proper air content is achieved. EUCON AIR MIX 250 should be added directly to the sand to achieve maximum performance.

Precautions/Limitations

- Consult your local Euclid Chemical representative for the proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- If material has frozen, warm material to 70°F (21°C) and agitate for 6 to 8 hours.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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AIREX-L™

Air Entraining Agent For Concrete

EUCLID CHEMICAL

Description

AIREX-L is a liquid solution of hydrocarbons used as an air entraining agent for concrete and complies with ASTM C260. When AIREX-L is added to the concrete mix, it produces a system of microscopic air bubbles that remains very stable in the concrete. The entrainment of air with AIREX-L improves ease of placement, workability and durability of the concrete while minimizing bleeding and segregation. AIREX-L contains no added chlorides or chemicals known to promote the corrosion of steel and is compatible with the full range of EUCLID admixtures.

Features/Benefits

AIREX-L can be used in normal density concretes as well as low slump concretes where resistance to cycles of freezing and thawing is required. AIREX-L is specifically designed to facilitate air entrainment of low slump and no slump concrete.

Technical Information

Physical Properties

Specific gravity (25º C)	1.007
% of solids by weight	5.0
pH	11.0

Packaging

AIREX-L is available in bulk as well as in containers of 1000, 205 or 20 liters.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

- AIREX-L meets all requirements of ASTM C 260 specifications.
- AIREX-L is approved by the Quebec and Ontario Ministry of Transportation.

Directions for Use

For normal slump concrete use a minimum of 15 mL/100 kg of cementitious material.

For dry concrete (0 to 50 mm slump), use a minimum of 100 mL/100 kg of cementitious material.

For roller compacted concrete (RCC), use 300 to 500 mL/100 kg of cementitious material.

AIREX-L should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement.

Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

The quantity of AIREX-L required to obtain the specified air content may be influenced by the following factors:

- Concrete and ambient temperature
- Cement types
- Mineral additives
- Quality of aggregate
- Sand gradation
- Slump of concrete
- Mixing equipment

Precautions/Limitations

- Keep from freezing
- AIREX-L is not W.H.M.I.S. regulated.
- In all cases, consult Safety Data Sheet before use.

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WATER REDUCERS

EUCON™ WR

Water Reducing Admixture

EUCLID CHEMICAL

Description

EUCON WR is a water reducing, normal set admixture for concrete made from a solution of modified salt of lignosulfonic acid. It provides a more plastic and cohesive mix in the fresh concrete and better durability, reduced shrinkage and less permeability in the hardened concrete. **EUCON WR** contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mixed concrete
- Prestressed concrete
- Precast concrete
- General use concrete
- Lightweight concrete
- Expansive concrete

Features/Benefits

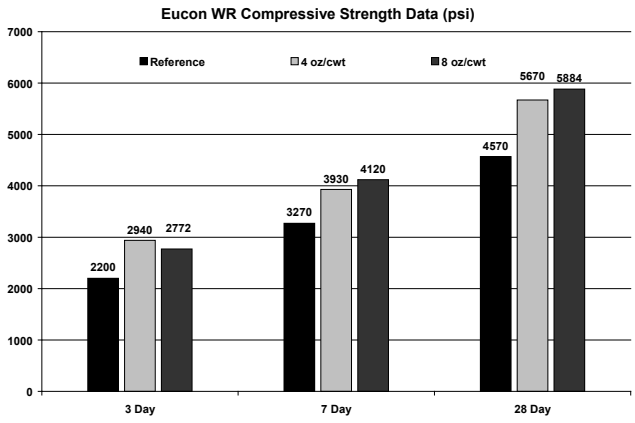
- Provides easier handling and finishing
- Increases strength
- Provides increased durability
- Reduces shrinkage and permeability

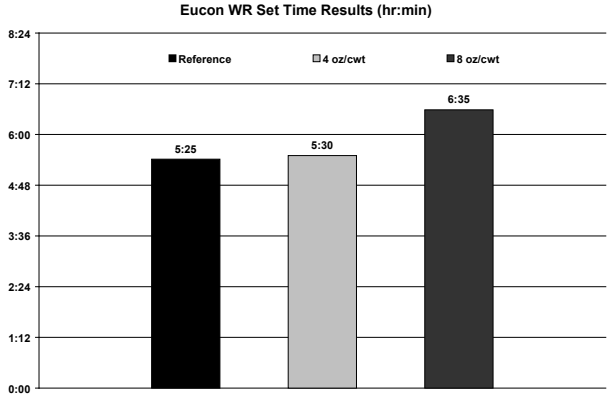
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON WR.





Packaging

EUCON WR is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON WR meets or exceeds the requirements of:

- ASTM C 494, Type A and Type D
- AASHTO M 194

Directions for Use

EUCON WR is typically used at dosages of 2 to 10 fl oz/cwt (130 to 650 mL/100 kg) of cementitious materials. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON WR admixture has been tested per ASTM C494 at a Type A dosage of 4 fl oz/cwt (260mL/100 kg) of cementitious materials and at 8 fl oz/cwt (520 mL/100 kg) of cementitious materials for Type B and D requirements.

Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative. EUCON WR should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement.

Precautions/Limitations

- Care should be taken to maintain EUCON WR above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ LW

Water Reducing Admixture

EUCLID CHEMICAL

Description

EUCON LW is a water reducing, normal set admixture made from an aqueous solution of refined lignosulfonate, polymer and other water reducing and plasticizing chemicals. EUCON LW provides a more plastic, cohesive mix in fresh concrete and better durability, reduced shrinkage and less permeability in the hardened concrete. EUCON LW contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mixed concrete
- Prestressed concrete
- Precast concrete
- General purpose concrete
- Lightweight concrete

Features/Benefits

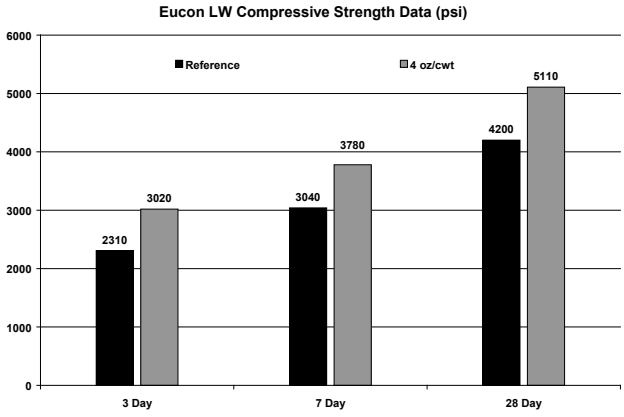
- Provides easier handling and finishing
- Increases strength
- Provides increased durability
- Reduces shrinkage and permeability

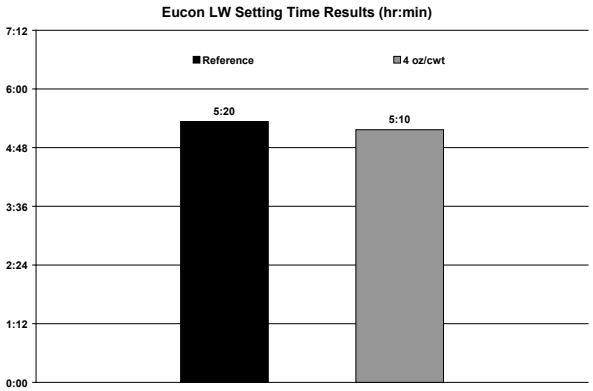
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON LW.





Packaging

EUCON LW is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

EUCON LW meets or exceeds the requirements of:

- ASTM C 494, Type A
- AASHTO M 194

Directions for Use

EUCON LW is typically used at dosages of 3 to 10 oz per 100 lbs (200 to 650 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON LW above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ WR 91

Water Reducing, Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON WR 91 is a liquid, water reducing and set retarding admixture formulated to improve setting and finishing characteristics for concrete when compared to other commonly used ASTM C 494 Type A water reducers. EUCON WR 91 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- General ready mix concrete
- Architectural concrete
- Mass concrete
- Bridge decks
- Hot weather concrete

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Reduces segregation
- Improves setting times

Hardened Concrete

- Increases strength at all ages
- Reduces permeability
- Improves finished appearance
- Reduces cracking
- Increases durability
- Non staining

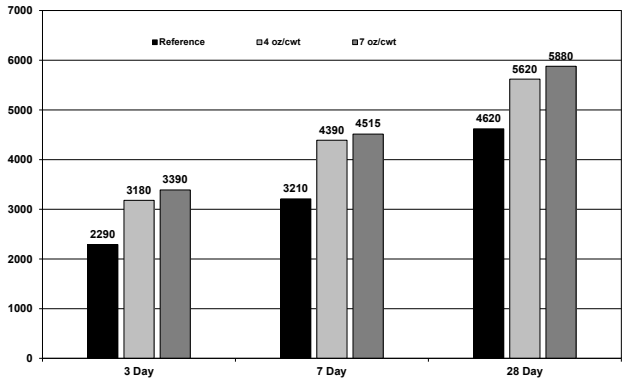
Technical Information

Performance Data

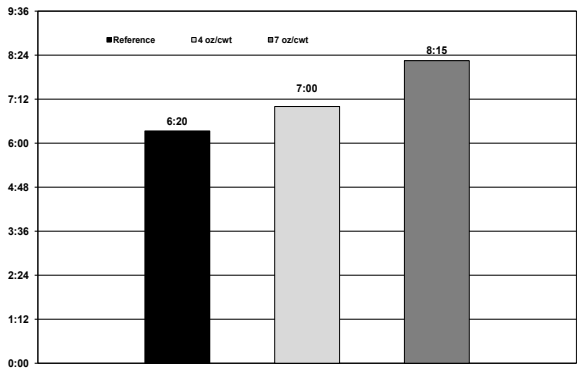
The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON WR 91.

Eucon WR 91 Compressive Strength Data (psi)



Eucon WR 91 Set Time Results (hr:min)



Packaging

EUCON WR 91 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON WR 91 meets or exceeds the requirements of:

- ASTM C 494, Type A & D
- AASHTO M 194
- ANSI / NSF STD 61

Directions for Use

EUCON WR 91 is typically used at dosages of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON WR 91 has been tested per ASTM C494 at a Type A dosage of 3 fl oz/cwt (195mL/100 kg) of cementitious materials and at 7 fl oz/cwt (460 mL/100 kg) of cementious materials for Type B and D requirements.

EUCON WR 91 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON WR 91 above freezing, however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Never agitate with air.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ NW

Water Reducing Admixture

EUCLID CHEMICAL

Description

EUCON NW is a water reducing, normal set admixture made from a concentrated solution of refined lignosulfonate, polymer and other water reducing and plasticizing chemicals. EUCON NW provides a more plastic and cohesive mix in fresh concrete and better durability, reduced shrinkage and less permeability in the hardened concrete. EUCON NW contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mixed concrete
- Prestressed concrete
- Precast concrete
- Lightweight concrete
- Expansive concrete
- General purpose concrete

Features/Benefits

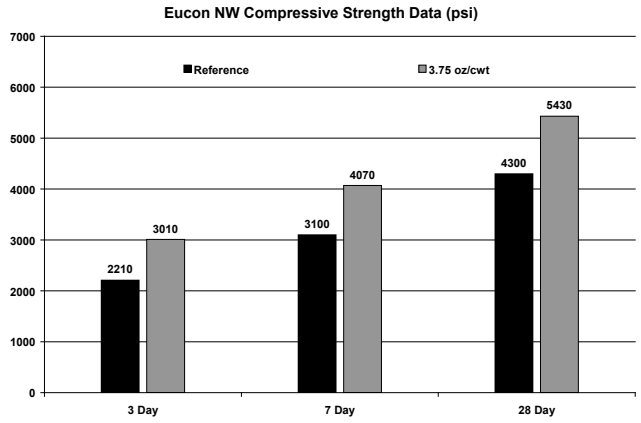
- Provides easier handling and finishing
- Increases strength
- Provides increased durability
- Reduces shrinkage and permeability

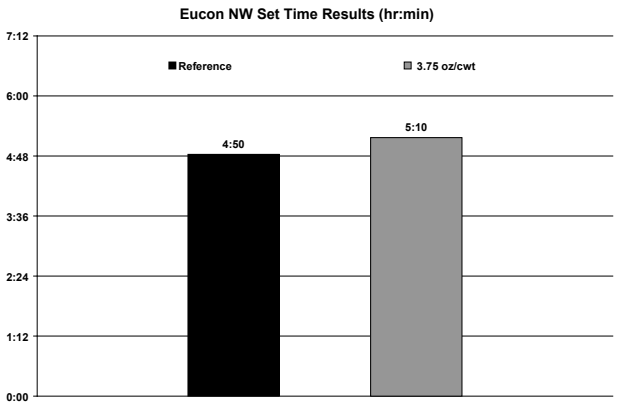
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON NW.





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Packaging

EUCON NW is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

EUCON NW meets or exceeds the requirements of:

- ASTM C 494, Type A & D
- AASHTO M 194

Directions for Use

EUCON NW is typically used at dosages of 2 to 6 oz per 100 lbs (130 to 390 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON NW has been tested per ASTM C494 at a Type A dosage of 3.5 fl oz/cwt (230mL/100 kg) of cementitious materials and at 6 fl oz/cwt (390 mL/100 kg) of cementious materials for Type B and D requirements.

EUCON NW should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON NW above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ WRX

Water Reducing, Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON WRX is a liquid, water reducing and set retarding admixture for concrete formulated for air stability. EUCON WRX shows improved setting and finishing characteristics when compared to other commonly used ASTM C 494 Type A water reducers. EUCON WRX contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- General ready mix concrete
- Architectural concrete
- Mass concrete
- Bridge decks
- Hot weather concrete

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Reduces segregation
- Improves setting times

Hardened Concrete

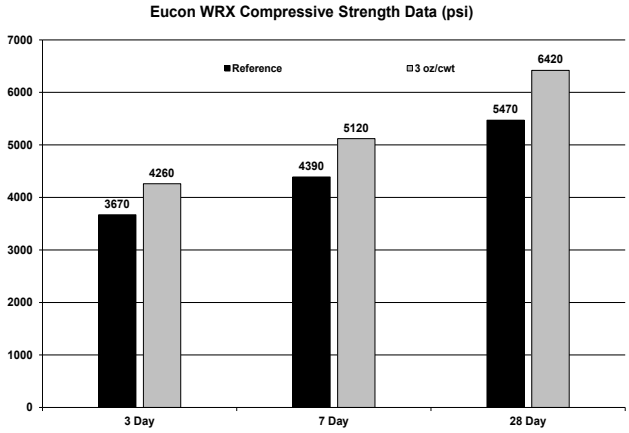
- Increases strength at all ages
- Reduces permeability
- Improves finished appearance
- Reduces cracking
- Increases durability
- Non staining

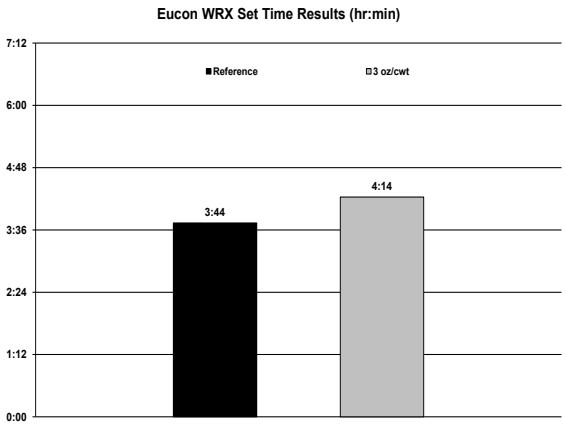
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON WRX.





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Packaging

EUCON WRX is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON WRX meets or exceeds the requirements of:

- ASTM C 494, Type A & D
- AASHTO M 194

Directions for Use

EUCON WRX is typically used at dosages of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON WRX has been tested per ASTM C494 at a Type A dosage of 3 fl oz/cwt (195mL/100 kg) of cementitious materials and at 7 fl oz/cwt (460 mL/100 kg) of cementious materials for Type B and D requirements.

EUCON WRX is formulated to maintain a stable air content where conventional water reducing admixtures have shown a tendency to produce erratic air contents.

EUCON WRX should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative. Trial mixes should be performed to determine the adequate air entraining admixture dosage.

Precautions/Limitations

- Care should be taken to maintain EUCON WRX above freezing, however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Never agitate with air.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data sheet before use.

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EUCON™ SE

Water Reducing, Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON SE is a synthetically produced liquid water reducing and set retarding admixture. It is uniquely formulated with Strength Enhancing admixture technology to promote improved early and late age strengths and have a neutral effect on air content when compared to standard water reducing technology. This admixture has been scientifically refined and specifically engineered to provide synergistic properties when combined with the polycarboxylate based PLASTOL line of Euclid Chemical admixtures. EUCON SE contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork Concrete
- Concrete requiring water reduction and set time control
- Architectural concrete
- Hot weather concrete placement

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirements
- Reduces segregation

Hardened Concrete

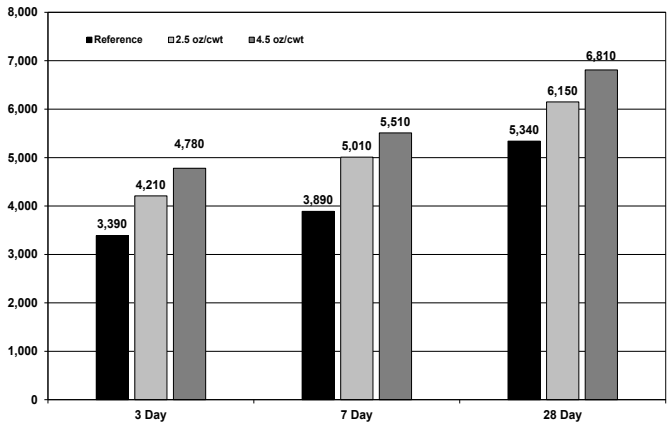
- Increases strengths
- Improves finished appearance
- Reduces cracking
- Reduces permeability
- Non staining

Technical Information

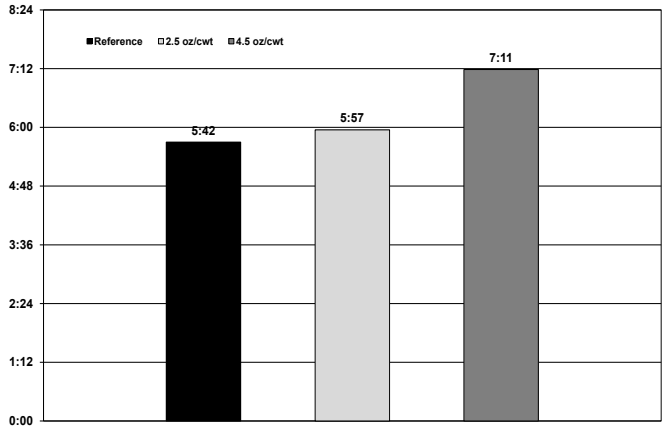
Performance Data

The following test results were achieved using typical mix design requirements of 500 lb/yd^3 (297 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials meeting ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON SE.

Eucon SE Compressive Strength Data (psi)



Eucon SE Set Time Results (hr:min)



Packaging

EUCON SE is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

- Fully complies with ASTM C494 Type A, B and D
- Fully complies with AASHTO M194

Directions for Use

EUCON SE is typically used at dosages of 2 to 6 oz per 100 lbs (130 to 390 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON SE has been tested per ASTM C494 at a Type A dosage of 2.5 fl oz/cwt (160mL/100 kg) of cementitious materials and Type B and D dosage of 4.5 fl oz/cwt (300mL/100 kg) of cementitious materials.

EUCON SE should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON SE above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ WR 75

Water Reducing, Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON WR 75 is a synthetically produced liquid, water reducing and retarding admixture for concrete that has been formulated to give optimum performance in reducing water requirements for concrete. EUCON WR 75 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- General ready mix concrete
- Architectural concrete
- Hot weather concrete
- Mass concrete
- Bridge Decks

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Improves finished appearance
- Reduces water requirements
- Extended setting characteristics
- Reduces segregation

Hardened Concrete

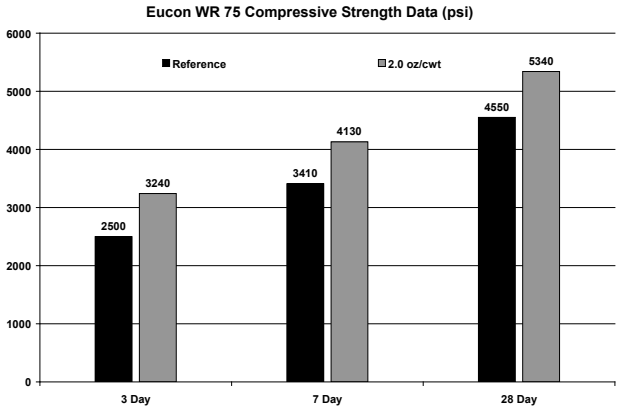
- Reduces cracking
- Reduces permeability
- Increases strength at all ages

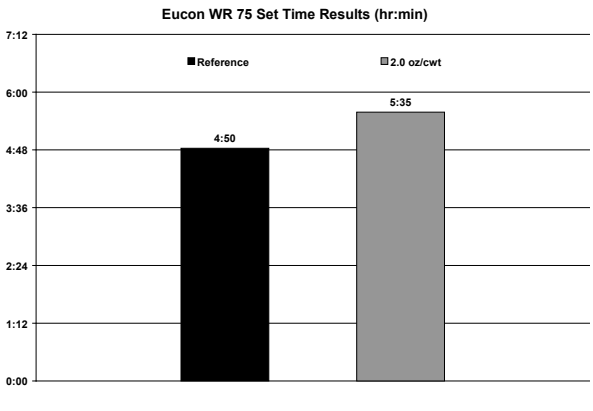
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON WR 75.





Packaging

EUCON WR 75 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

EUCON WR 75 meets or exceeds the requirements of:

- ASTM C 494, Type A, B & D
- AASHTO M 194.

Directions for Use

EUCON WR 75 is typically used at dosages of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON WR 75 has been tested per ASTM C494 at a Type A dosage of 2 fl oz/cwt (130mL/100 kg) of cementitious materials and at 5 fl oz/cwt (325 mL/100 kg) of cementious materials for Type B and D requirements.

EUCON WR 75 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON WR 75 above freezing.
- For additional information on EUCON WR 75, its usage on typical mix designs, contact The Euclid Chemical Company.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ A+

Type A - Water Reducing Admixture

EUCLID CHEMICAL

Description

EUCON A+ is a fast setting, water reducing and plasticizing admixture for concrete. It shows improved setting and finishing characteristics when compared to other commonly used Type A water reducing admixtures. EUCON A+ contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- Architectural concrete
- Ready mixed concrete

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Reduces segregation
- Improves setting times

Hardened Concrete

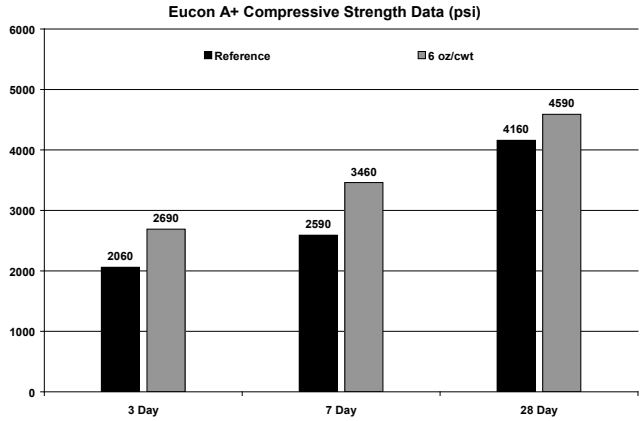
- Increases strength at all ages
- Reduces permeability
- Improves finished appearance
- Reduces cracking
- Increases durability
- Non staining

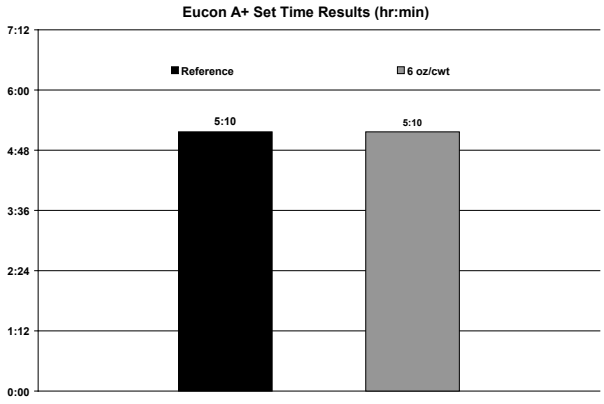
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained in laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON A+.





Packaging

EUCON A+ is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON A+ meets or exceeds the requirements of:

- ASTM C 494, Type A
- AASHTO M 194

Directions for Use

EUCON A+ is typically used at dosages of 3 to 8 oz per 100 lbs (200 to 520 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON A+ has been tested per ASTM C494 Type A at a dosage of 6 fl oz/cwt (390mL/100 kg) of cementitious materials.

EUCON A+ should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- Care should be taken to maintain EUCON A+ above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ DX

Water Reducing Admixture – ASTM C 494 Type A

EUCLID CHEMICAL

Description

EUCON DX is a ready-to-use strength increasing water reducing liquid admixture for concrete. It is an aqueous solution of hydroxy-carboxylic acids and a catalyst which provides a better hydration of the cementitious material. EUCON DX contains no added chlorides or chemicals known to promote the corrosion of steel.

Features/Benefits

- Provides a reduction of 5% to 10% of the total water in the mix depending on the quantity and characteristics of the cementitious material
- Recommended if the cement has a very low sulphate content
- Synergistic effects when combined with an air entraining agent such as AIREXTRA
- Little to no effect on air
- Generally increases compressive strength by 15-25%
- Can be used in combination with superplasticizer for high performance concrete
- Works well with pozzolan material such as silica fume, fly ash, and slag
- Provides better workability and exceptional hydration
- Recommended for concrete where increased bleeding is desirable.

Technical Information

Compressive Strengths* (MPa)

Age	Reference	EUCON DX
3 days	17.3	22.5
7 days	21.1	26.5
28 days	25.8	31.0

*According to ASTM C 494 qualification results.

Physical Properties

Specific gravity (25° C)	1.150
% of solids by weight	28.5
pH	8.5

Consult your EUCLID representative for additional information or technical assistance.

Packaging

EUCON DX is available in bulk as well as in containers of 1000, 205 or 20 L.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

- EUCON DX meets all requirements of ASTM C 494 Type A.
- EUCON DX is approved by the Quebec Ministry of Transportation.

Directions for Use

EUCON DX should be introduced in the mix a few seconds after the cementitious material and water come into contact. This will maximize the workability gain and ensure better cementitious particle dispersion. It should not be in direct contact with dry cement. Always add independently of other admixtures.

Dosage may vary from 150 to 250 mL/100 kg of cementitious material, however EUCON DX has been tested per ASTM C494 Type A at a dosage of 185 mL/100 kg of cementitious material.

Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitations

- EUCON DX is not W.H.M.I.S. regulated.
- Care should be taken to maintain EUCON DX above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use

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MID-RANGE WATER REDUCERS

EUCON™ MR

Mid Range Water Reducing Admixture

EUCLID CHEMICAL

Description

EUCON MR is a mid range water reducing and plasticizing admixture for concrete. EUCON MR shows improved finishing characteristics when compared to other commonly used Type A (typically 5 - 6% water reduction) or Type F (typically 12 - 15% water reduction) admixtures. This mid range approach to water reducing admixtures allows for a wide range of usable dosage rates for a broad application spectrum. EUCON MR contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- Architectural concrete
- General purpose ready mixed concrete
- Concrete containing fly ash and other pozzolans

Features/Benefits

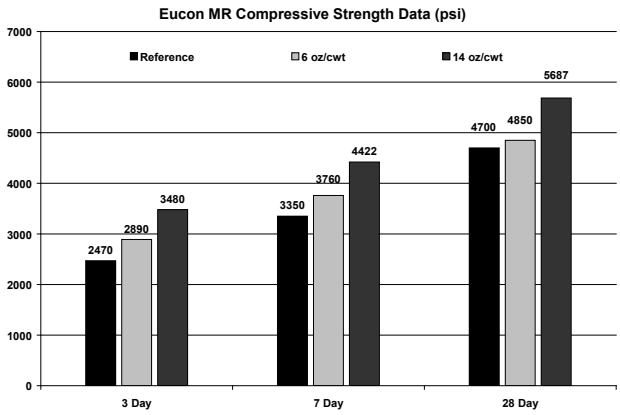
- Produces concrete with lower water / cement ratio allowing for increased strength
- Increased concrete strength lowers the potential for cracks
- Lower water / cement ratio allows for lower cement content, saving the producer money
- Increases concrete workability allowing for easier concrete placement
- Produces concrete that is easier to finish which lowers labor costs

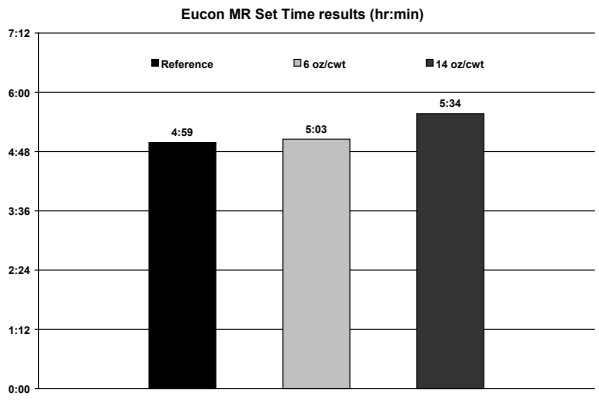
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON MR.





19215 Redwood Road • Cleveland, OH 44110
800-321-7628 t • 216-531-9596 f

Packaging

EUCON MR is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON MR meets or exceeds the requirements of:

- ASTM C 494, Type A and Type F
- AASHTO M 194
- ANSI/NSF STD 61

Directions for Use

EUCON MR is typically used at dosages of 4 to 15 oz per 100 lbs (260 to 980 mL per 100 kg) of cementitious material. EUCON MR can provide excellent performance and standard water reduction for most applications at dosage rates of 4 to 10 oz per 100 lbs (260 to mL per 650 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

EUCON MR should be added to the initial batch water when possible. It should not come in contact with dry cement or other admixtures until they are mixed with the concrete batch. Field testing is strongly recommended to optimize dosage range and performance expectations with local materials. EUCON MR is compatible with Euclid Chemical admixtures.

Precautions / Limitations

- Care should be taken to maintain EUCON MR above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ X15

Mid Range Water Reducing Admixture

EUCLID CHEMICAL

Description

EUCON X15 is a mid range water reducing and plasticizing admixture for concrete. EUCON X15 shows improved finishing characteristics when compared to other commonly used Type A (typically 5 - 6% water reduction) or Type F (typically 12 - 15% water reduction) admixtures. This mid range approach to water reducing admixtures allows for a wide range of usable dosage rates for a broad application spectrum. EUCON X15 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- Architectural concrete
- General purpose ready mixed concrete
- Concrete containing fly ash and other pozzolans

Features/Benefits

Plastic Concrete

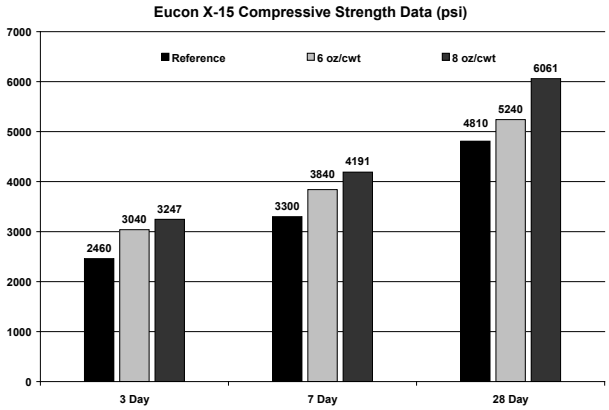
- Produces concrete with lower water / cement ratio allowing for increased strength
- Increased concrete strength lowers the potential for cracks
- Lower water / cement ratio allows for lower cement content, saving the producer money
- Increases concrete workability allowing for easier concrete placement
- Produces concrete that is easier to finish which lowers labor costs

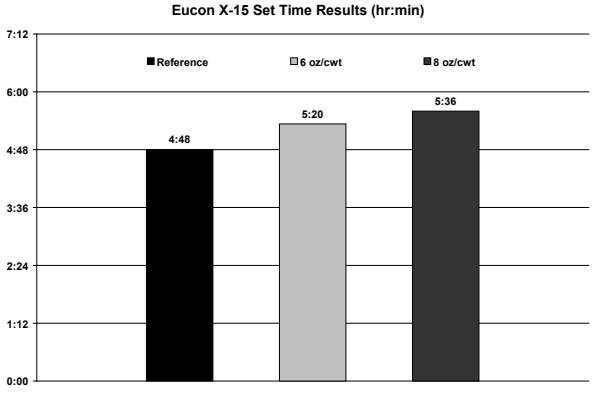
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON X15.





Packaging

EUCON X15 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON X15 meets or exceeds the requirements of:

- ASTM C 494, Type A and Type F
- AASHTO M 194

Directions for Use

EUCON X15 is typically used at dosages of 4 to 15 oz per 100 lbs (260 to 1000 mL per 100 kg) of cementitious material. EUCON X15 can provide excellent performance and standard water reduction for most applications at dosage rates of 4 to 10 oz per 100 lbs (260 to mL per 650 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

EUCON X15 should be added to the initial batch water when possible. It should not come in contact with dry cement or other admixtures until they are mixed with the concrete batch. Field testing is strongly recommended to optimize dose range and performance expectations with local materials. EUCON X15 is compatible with Euclid Chemical admixtures.

Precautions/Limitations

- Care should be taken to maintain EUCON X15 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ X20

Mid Range Water Reducing Admixture

EUCLID CHEMICAL

Description

EUCON X20 is an unique mid range water reducing and plasticizing admixture that is manufactured with state of the art chemistries to provide exceptional slump retention without excessive retardation in warm temperatures. EUCON X20 shows improved finishing characteristics when compared to other commonly used Type A or F water reducing admixtures. EUCON X20 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- Architectural concrete
- General purpose ready mixed concrete
- Hot weather concreting

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Exceptional slump retention in hot weather

Hardened Concrete

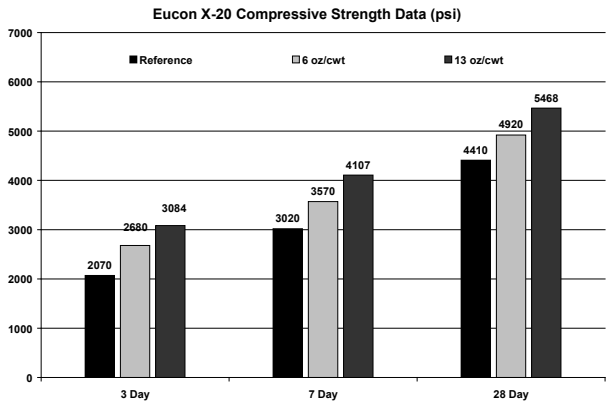
- Increases all strength
- Reduces permeability
- Improves finished appearance
- Reduces shrinkage
- Increases durability
- Non-staining

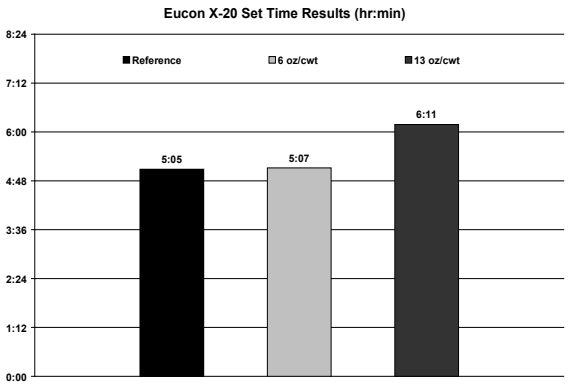
Technical Information

Performance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON X20.





Packaging

EUCON X20 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON X20 meets or exceeds the requirements of:

- ASTM C 494, Type A and Type F
- AASHTO M 194

Directions for Use

EUCON X20 is typically used at dosages of 3 to 15 oz per 100 lbs (200 to 975mL per 100 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

EUCON X20 should be added to the initial batch water when possible. It should not come in contact with dry cement or other admixtures until they are mixed with the concrete batch. Field testing is strongly recommended to optimize dosage range and performance expectations with local materials. EUCON X20 is compatible with Euclid Chemical admixtures.

Precautions/Limitations

- Care should be taken to maintain EUCON X20 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ MRX

Mid Range Water Reducing Admixture

EUCLID CHEMICAL

Description

EUCON MRX is a specially formulated mid-range water reducing and plasticizing admixture formulated using advanced dispersant technologies, specifically engineered for a wide range of dosage rates without causing excessive retardation. Eucon MRX shows improved finishing characteristics when compared to other commonly used Type A and F water reducing admixtures. Eucon MRX can be used to reduce the total cement content and in combination with supplementary cementitious materials (SCMs). EUCON MRX contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- Architectural concrete
- General purpose ready-mix concrete
- Concrete containing fly ash and other pozzolans
- Hot weather concreting

Features/Benefits

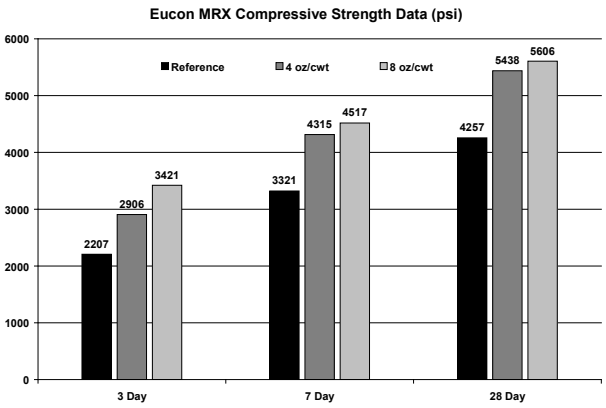
- Produces concrete with lower water to cement ratio allowing for increased strength
- Increased concrete strength lowers the potential for cracks
- Neutral effects on setting-times over a wide dosage range
- Improved workability aids in concrete placement and reduces labor cost
- Lower W/C allows for lower cement content/ ability to use SCMs, saving the producer money

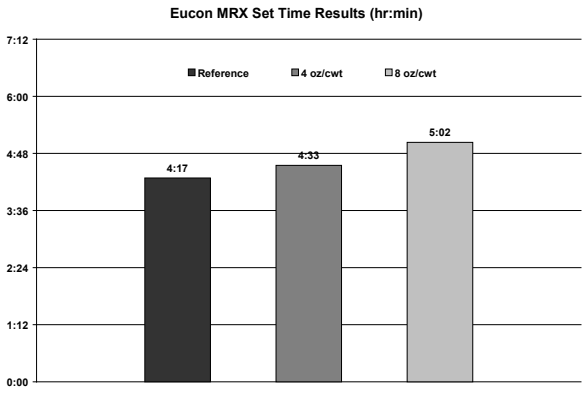
Technical Information

Performance Data

The following results were developed under laboratory conditions:

Mix Design	
Cement T-I/II	600 lbs/yd3 (272 kg/m^3)
Stone	1800 lbs/yd3 (1067 kg/m3)
Sand	1414 lbs/yd3 (839 kg/m^3)
W/C	0.49





Packaging

Eucon MRX is available in bulk, 275 gal (1041L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

Eucon MRX admixture meets requirements of ASTM C494/C494M and AASHTO M-194 as Type A & F admixtures.

Directions for Use

Eucon MRX can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed batching directly on the freshly batched concrete. It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch. Eucon MRX is dispensed with automatic equipment, thus insuring uniformity of admixture use throughout the project.

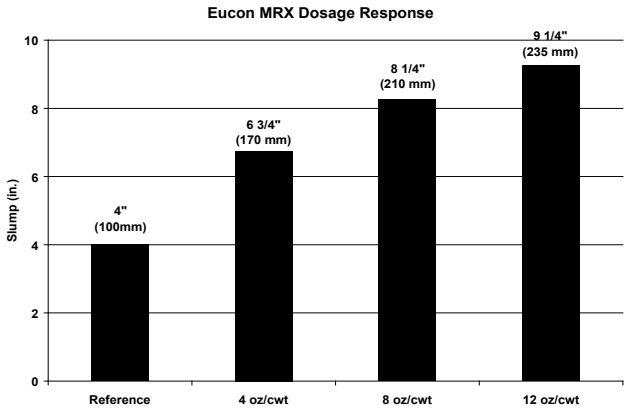
Dosage Rates: The recommended dosage rate for Eucon MRX is 3-12 oz/100lbs (195 to 782 mL/100 kg) of total cementitious materials.

Standard Water Reduction: Eucon MRX will typically achieve ASTM C494 Type A performance at 3-5 fl oz (196 to 325 mL/100 kg) per 100 lbs of cementitious.

Mid-Range performance: Eucon MRX is usually used at the rate of 5 to 7 fl oz (326 to 522 mL/100 kg) per 100 lbs of cementitious.

Mid Range Water Reduction: Eucon MRX can be typically used at a rate of 7 to 12 fl oz (522 to 782 mL/100 kg) per 100 lbs of cement for high-range admixture performance.

Admixture Compatibility: Eucon MRX is compatible with most admixtures including air-entraining agents, accelerators, most water-reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.



Precautions / Limitations

- Care should be taken to maintain Eucon MRX above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Do not agitate with air.
- Add to concrete mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ 341

Mid/High Range - Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL 341 is a mid/high range water reducing and plasticizing polycarboxylate based admixture for concrete. PLASTOL 341 shows improved finishing characteristics when compared to other commonly used Type A (typically 5 - 6% water reduction) or Type F (typically 12 - 15% water reduction) admixtures. This mid range approach to water reducing admixtures allows for a wide range of usable dosage rates for a broad application spectrum. PLASTOL 341 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Precast concrete
- Cast in place
- Self-consolidating concrete
- Concrete mixtures utilizing Fly Ash, Slag or other natural pozzolans

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Improves setting times
- Superior slump retention

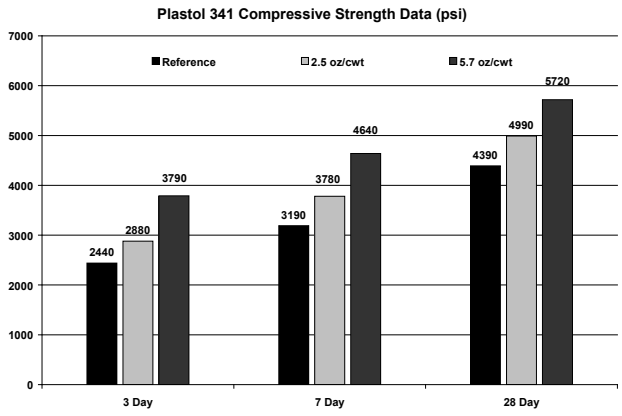
Hardened Concrete

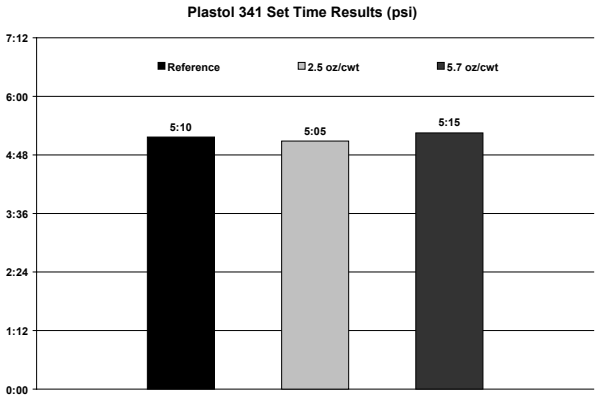
- Increases early and late age strengths
- Reduces permeability
- Increases durability

Technical Information

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 341.





Master Format #:
03 30 00
03 40 00
03 70 00

Packaging

PLASTOL 341 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

PLASTOL 341 meets or exceeds the requirements of:

- ASTM C 494, Type A and Type F
- AASHTO M 194
- ANSI/NSF STD 61 registered

Directions for Use

PLASTOL 341 has a recommended dosage range of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material.

PLASTOL 341 should be added to the initial batch water when possible. It should not come in contact with dry cement or other admixtures until they are mixed with the concrete batch. Field testing is strongly recommended to optimize dosage range and performance expectations with local materials.

PLASTOL 341 is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions/Limitations

- Care should be taken to maintain PLASTOL 341 above freezing.
- Never agitate with air.
- Add to concrete mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

Rev. 08.19

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PLASTOL™ 341S

Mid/High Range Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL 341S is a mid/high range water reducing and plasticizing polycarboxylate based admixture for concrete. PLASTOL 341S shows improved finishing characteristics when compared to other commonly used Type A (typically 5 - 6% water reduction) or Type F (typically 12 - 15% water reduction) admixtures. This mid range approach to water reducing admixtures allows for a wide range of usable dosage rates for a broad application spectrum. PLASTOL 341S contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Precast concrete
- Cast in place
- Self-consolidating concrete
- Concrete mixtures utilizing Fly Ash, Slag or other natural pozzolans

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Improves setting times
- Superior slump retention

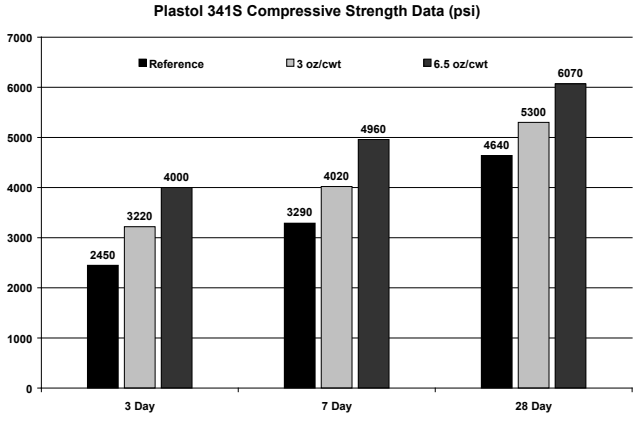
Hardened Concrete

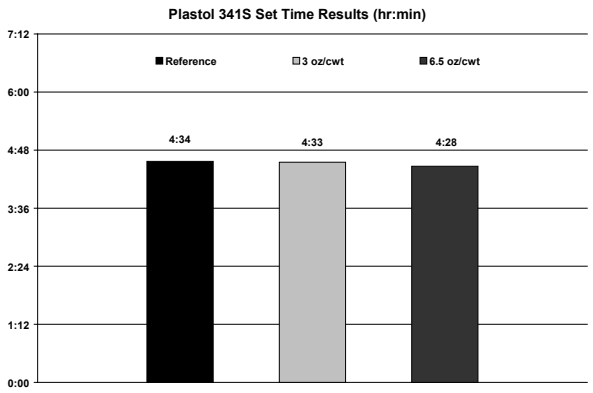
- Increases early and late age strengths
- Reduces permeability
- Increases durability

Technical Information

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 341S.





Packaging

PLASTOL 341S is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

PLASTOL 341S meets or exceeds the requirements of:

- ASTM C 494, Type A and Type F
- AASHTO M 194

Directions for Use

PLASTOL 341S has a recommended dosage range of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

PLASTOL 341S should be added to the initial batch water when possible. It should not come in contact with dry cement or other admixtures until they are mixed with the concrete batch. Field testing is strongly recommended to optimize dosage range and performance expectations with local materials. PLASTOL 341S is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions/Limitations

- Care should be taken to maintain PLASTOL 341S above freezing.
- Never agitate with air.
- Add to concrete mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

Rev. 08.19

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PLASTOL™ 6420

Mid/High Range - Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL 6420 is a mid/high range water reducing and plasticizing polycarboxylate based admixture for concrete. PLASTOL 6420 shows improved finishing characteristics when compared to other commonly used Type A (typically 5 - 6% water reduction) or Type F (typically 12 - 15% water reduction) admixtures. This mid range approach to water reducing admixtures allows for a wide range of usable dosage rates for a broad application spectrum. PLASTOL 6420 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Precast concrete
- Cast in place
- Self-consolidating concrete (SCC)
- Concrete mixtures utilizing Fly Ash, Slag or other natural pozzolans

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Improves setting times
- Superior slump retention
- Improved air consistency

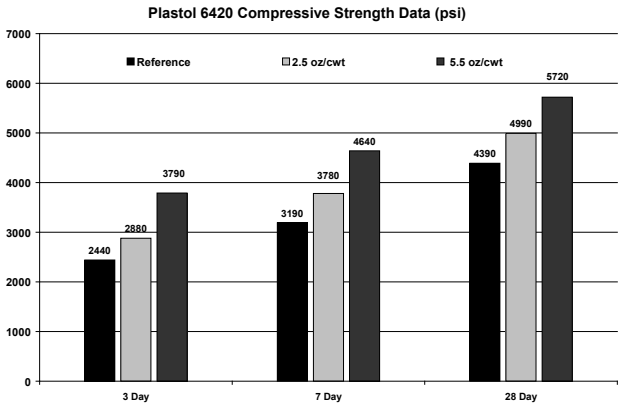
Hardened Concrete

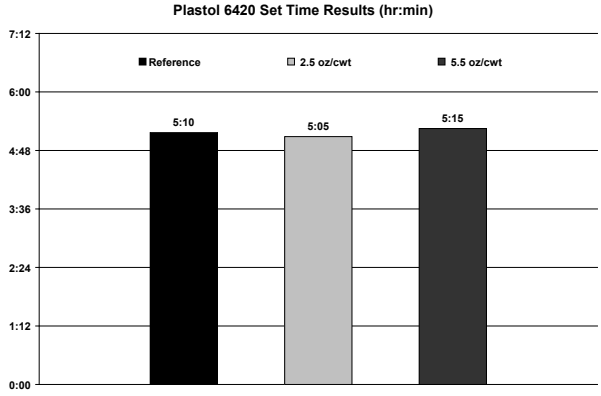
- Increases early and late age strengths
- Reduces permeability
- Increases durability

Technical Information

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 6420.





Master Format #:
03 30 00 03 40 00
03 70 00

Packaging

PLASTOL 6420 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

PLASTOL 6420 meets or exceeds the requirements of:

- ASTM C 494, Type A and Type F
- ASTM C 1017 as a Type I admixture
- AASHTO M 194
- ANSI/NSF STD 61 registered

Directions for Use

PLASTOL 6420 has a recommended dosage range of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

Dosages of PLASTOL 6420 to make SCC will vary depending on mixture design. Trial mixtures should be run to verify plastic and hardened performance with local materials.

PLASTOL 6420 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed dispensing directly on the freshly batched concrete.

PLASTOL 6420 should not come in contact with dry cement or other admixtures until they are mixed with the concrete batch. Field testing is strongly recommended to optimize dosage range and performance expectations with local materials. PLASTOL 6420 is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions/Limitations

- Care should be taken to maintain PLASTOL 6420 above freezing.
- Never agitate with air.
- Add to concrete mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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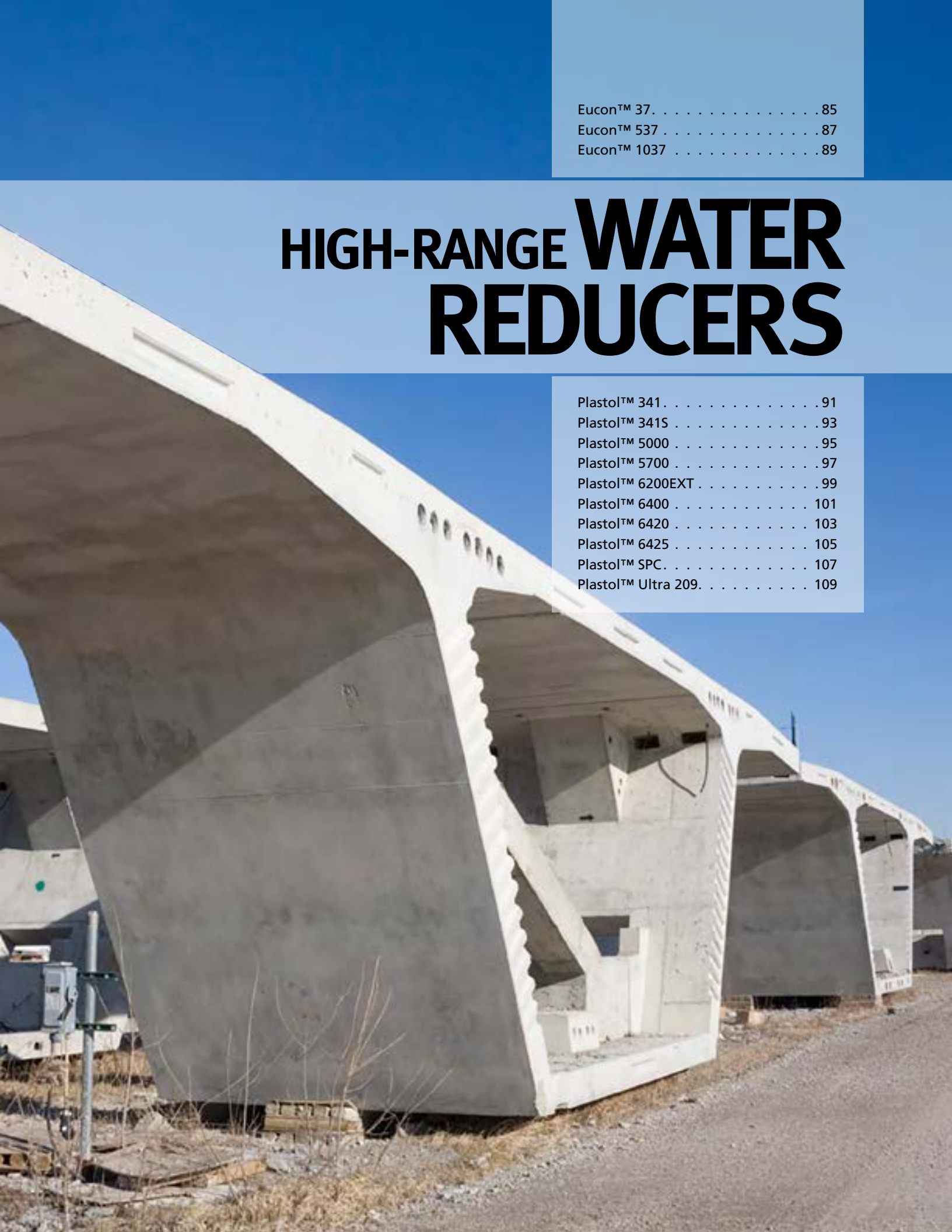
HIGH-RANGE WATER REDUCERS



EUCON™ 37

High Range Water Reducer - Superplasticizer

EUCLID CHEMICAL

Description

EUCON 37 is a high range water reducing admixture. It may be added to the concrete at the job site or at the ready mix concrete plant. EUCON 37 is formulated to retain plastic consistency for 30-60 minutes after dosing, depending on the initial slumps, dosage rates, and ambient temperature. EUCON 37 contains no added chlorides or chemicals known to promote the corrosion of steel. It is also compatible with air-entraining agents, waterproofing agents, accelerators and many other admixtures; however, each material should be added to the concrete separately.

Primary Applications

- High performance concrete
- General ready mix concrete
- Heavily reinforced concrete
- Flatwork and mass concrete
- Prestressed concrete
- Low water/cement ratio concrete
- High slump, flowable concrete

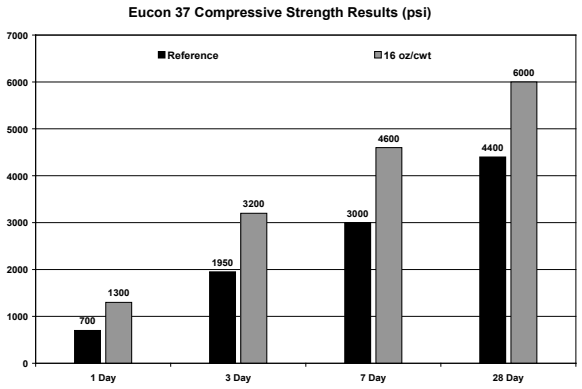
Features/Benefits

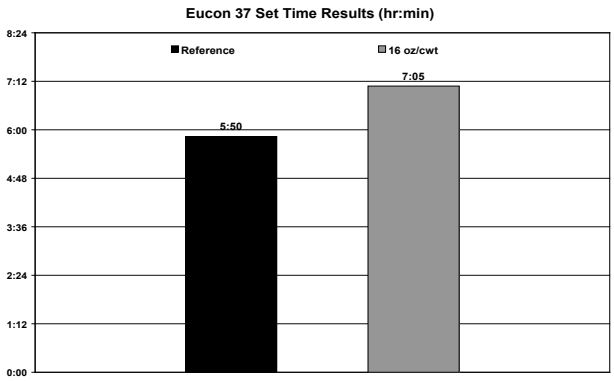
- Allows lower water content and low water/cement ratios for higher strength
- Produces flowing concrete with higher strength at all ages
- Aids in concrete placement and reduces labor cost
- Will produce the high early strengths when used in precast work with Type I cement

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON 37.





Packaging

EUCON 37 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

EUCON 37 meets or exceeds the requirements of:

- ASTM C 494, Types A & F admixtures
- ASTM C 1017 as a Type I admixture
- AASHTO M 194

Directions for Use

EUCON 37 has a recommended dosage range of 6 to 18 oz per 100 lbs (400 to 1170 mL per 100 kg) of cementitious material. EUCON 37 can provide excellent performance for most applications at dosage rates of 6 to 10 oz per 100 lbs (400 to 650 mL per 100 kg) of cementitious material. For SCC concrete or high performance mixtures dosage rates of 10 to 18 oz per 100 lbs (650 to 1170 mL per 100 kg) of cementitious material can be used. Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of EUCON 37 will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be run to verify plastic and hardened performance with local materials. If the material gradations are not optimum for SCC, a viscosity modifier may be used to improve the quality of the mix. Please consult a local Euclid Chemical Sales Professional for trial mixtures and dosage recommendations.

EUCON 37 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed batching directly on the freshly batched concrete. It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch.

EUCON 37 is compatible with most admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Figure 1: Recommended Dosage of Eucon 37 to achieve flowable concrete (7 - 9"/ 180-230 mm slump)

Initial Slump, inches (mm)	Dosage Range of Eucon 37, oz/cwt (mL/100 kg)
4 (100)	8 - 10 (520 - 650)
3 (75)	10 - 12 (650 - 780)
2 1/2 (65)	12 - 14 (780 - 910)
2 (50)	14 - 16 (910 - 1040)
1 1/2 (40)	16 - 18 (1040 - 1170)

Placement

Concrete treated with EUCON 37 may be placed in the same fashion as conventional concrete.

Formwork

Forms for walls or narrow sections must be watertight, strong and have good bracing. During the "flowing period", when the concrete is at a slump of 7" to 9" (180-230 mm), the concrete will exert a higher pressure at the base of the form than conventional concrete. Formwork for slabs is the same as for conventional concrete.

Precautions / Limitations

- Care should be taken to maintain EUCON 37 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ 537

High Range Water Reducing Retarding Admixture

EUCLID CHEMICAL

Description

EUCON 537 is a high range water reducing admixture formulated specifically to extend the working time of flowing concrete at temperatures up to 130°F (54°C). EUCON 537 does not contain calcium chloride or any other ingredients that would promote the corrosion of steel.

Primary Applications

- Reinforced concrete
- High strength concrete
- Industrial slabs
- Lightweight concrete
- Prestressed concrete
- Parking structures
- Watertight concrete

Features/Benefits

- Produces “flowing” concrete with controlled delay of slump loss and workability.
- Greatly reduces water requirements.
- Reduces segregation and bleeding in the plastic concrete.
- Reduces cracking and permeability of hardened concrete.
- When used to produce "flowing" concrete, significantly reduces concrete placement time and cost.

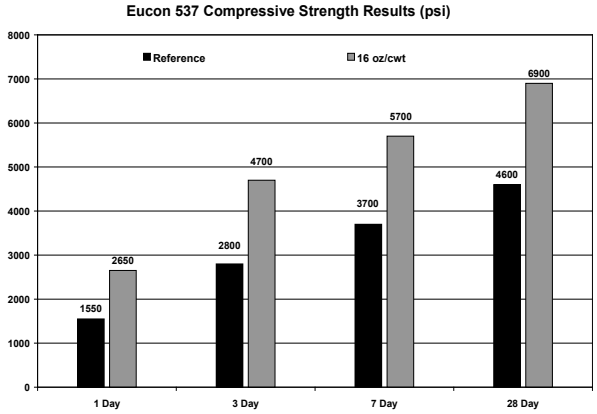
Packaging

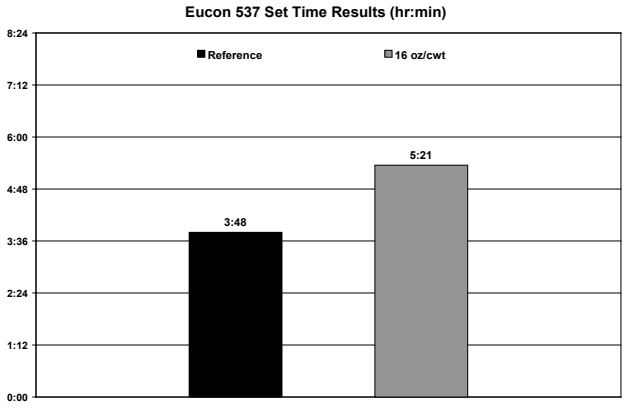
EUCON 537 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON 537.





Shelf Life

2 years in original, unopened container.

Specifications/Compliances

EUCON 537 meets or exceeds the following requirements:

- ASTM C 494, Type G
- AASHTO M 194

Directions for Use

EUCON 537 can be added to the initial batch water or directly on the freshly batched concrete. However, better results have been observed batching directly on the freshly batched concrete. It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch.

When designing mixes for use with EUCON 537, ACI 211.1 and ACI 211.2 recommendations should be followed. After the initial mix is established, the sand to coarse aggregate ratio may be adjusted to maintain homogeneity of the "flowing" concrete mix. For "flowing" concrete, charge all concrete materials into the mixer and mix five minutes or 70 revolutions to the initial specified slump. Add EUCON 537 and mix an additional 3 minutes.

EUCON 537 is used at a range of 6 to 32 oz per 100 lbs (390 to 2080 mL per 100 kg) cementitious material depending on the temperature and retention requirements. When EUCON 537 is added, at a rate of 12 oz per 100 lbs (750 mL per 100 kg) cementitious, to a 1" to 3" (25 to 76 mm) slump concrete, it will produce flowable concrete with a slump of 7" to 9" (180 to 230 mm).

The slump loss will be gradual up to six (6) hours at a temperature of 72°F (22°C) and up to three (3) hours at a temperature of 120°F (49°C) when proper quantities of EUCON 537 are used. Variations in slump loss and setting characteristics are a function of the amount of admixture used (See Figure 1), cement characteristics and the mix design selected. An increase in concrete temperature will cause an increase in slump loss and a decrease in initial set time.

Figure 1: Recommended Dosage of Eucon 537 to a 3" (76 mm) slump to achieve flowable concrete at varying temperatures

Temperature, °F (°C)	Dosage Range of Eucon 537, oz/cwt (mL/100 kg)
80 (27)	10 - 16 (650 - 1040)
90 (32)	10 - 18 (650 - 1170)
100 (38)	12 - 20 (780 - 1300)
110 (43)	12 - 24 (780 - 1560)
120 (49)	16 - 32 (1040 - 2090)
130 (54)	20 - 32 (1250 - 2090)

Formwork

Forms for walls or narrow sections must be watertight, strong and have good bracing. During the "flowing period", when the concrete is at a slump of 7" to 9" (180-230 mm), the concrete will exert a higher pressure at the base of the form than conventional concrete. Formwork for slabs is the same as for conventional concrete.

Precautions/Limitations

- The use of EUCON 537 varies with every application. It is recommended to run trial mixes before use to determine optimal performance of EUCON 537.
- To minimize concrete problems at concrete temperatures higher than 75°F (24°C), or in windy weather, follow recommendations of ACI 305R-10 report, "Hot Weather Concreting."
- EUCON 537 must be protected from freezing.
- In all cases consult the Safety Data Sheet before use.

Rev. 08.19

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EUCON™ 1037

High Range Water Reducer - Superplasticizer

EUCLID CHEMICAL

Description

EUCON 1037 is a high range water reducing admixture. It may be added to the concrete at the job site or at the ready mix concrete plant. EUCON 1037 is formulated to retain plastic consistency for 30-60 minutes after dosing, depending on the initial slumps, dosage rates, and ambient temperature. EUCON 1037 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- High performance concrete
- General ready mix concrete
- Heavily reinforced concrete
- Flatwork and mass concrete
- Prestressed concrete
- Low water/cement ratio concrete
- High slump, flowable concrete

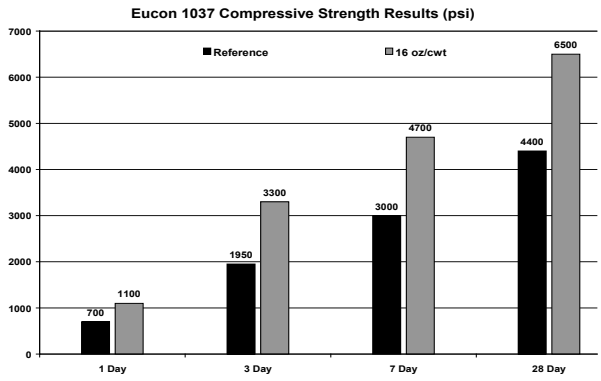
Features/Benefits

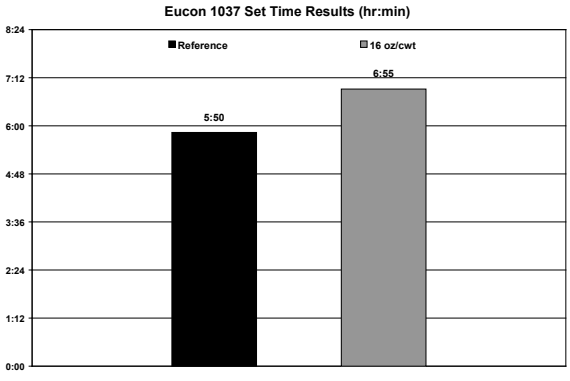
- Aids in producing low water/cement ratio concrete allowing higher strengths
- Produces flowing concrete
- Produces high early strengths when used in precast work with Type I cement
- Aids in concrete placement and reduces labor cost

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON 1037.





Packaging

EUCON 1037 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

- Fully complies with the requirements of ASTM C 494, Types A & F admixtures.
- Fully complies with the requirements of AASHTO M 194.
- ANSI/NSF STD 61

Directions for Use

EUCON 1037 has a recommended dosage range of 8 to 25 oz per 100 lbs (520 to 1630 mL per 100 kg) of cementitious material. Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of EUCON 1037 will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be run to verify plastic and hardened performance with local materials. If the material gradations are not optimum for SCC, a viscosity modifier may be used to improve the quality of the mix. Please consult a local Euclid Chemical Sales Professional for trial mixtures and dosage recommendations.

EUCON 1037 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed batching directly on the freshly batched concrete. It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch.

EUCON 1037 is compatible with most admixtures including air-entraining agents, accelerators, most water-reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Figure 1: Recommended Dosage of Eucon 1037 to achieve flowable concrete (7-9"/ 180 - 230 mm slump)

Initial Slump, inches (mm)	Dosage Range of Eucon 1037, oz/cwt (mL/100 kg)
4 (100)	8 - 10 (520 - 650)
3 (75)	10 - 12 (650 - 780)
2 1/2 (65)	12 - 14 (780 - 910)
2 (50)	14 - 16 (910 - 1040)
1 1/2 (40)	16 - 18 (1040 - 1170)

Placement

Concrete treated with EUCON 1037 may be placed in the same fashion as conventional concrete.

Formwork

Forms for walls or narrow sections must be watertight, strong and have good bracing. During the "flowing period", when the concrete is at a slump of 7" to 9" (180-230 mm), the concrete will exert a higher pressure at the base of the form than conventional concrete. Formwork for slabs is the same as for conventional concrete.

Precautions / Limitations

- Care should be taken to maintain EUCON 1037 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- In all cases, consult the Safety Data Sheet before use.

Rev. 08.19

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PLASTOL™ 341

Mid/High Range - Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL 341 is a mid/high range water reducing and plasticizing polycarboxylate based admixture for concrete. PLASTOL 341 shows improved finishing characteristics when compared to other commonly used Type A (typically 5 - 6% water reduction) or Type F (typically 12 - 15% water reduction) admixtures. This mid range approach to water reducing admixtures allows for a wide range of usable dosage rates for a broad application spectrum. PLASTOL 341 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Precast concrete
- Cast in place
- Self-consolidating concrete
- Concrete mixtures utilizing Fly Ash, Slag or other natural pozzolans

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Improves setting times
- Superior slump retention

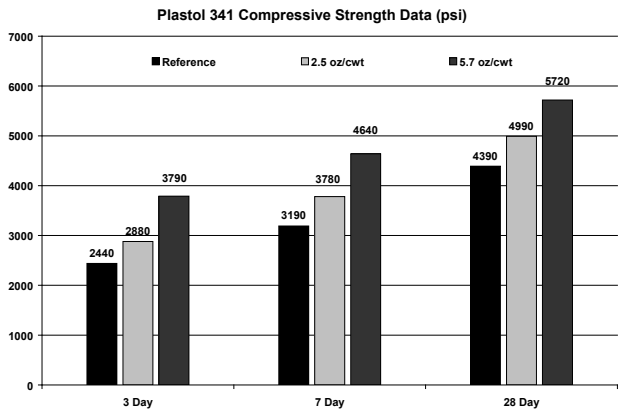
Hardened Concrete

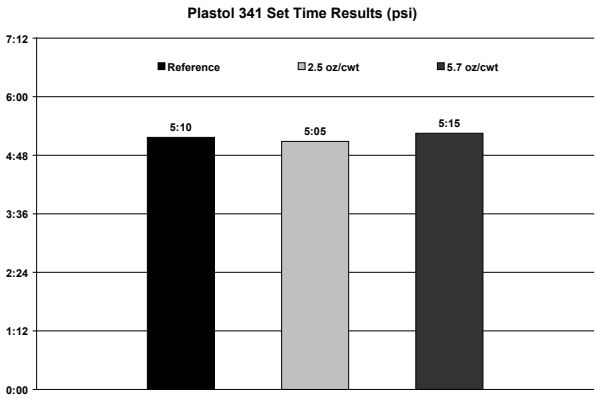
- Increases early and late age strengths
- Reduces permeability
- Increases durability

Technical Information

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 341.





19215 Redwood Road • Cleveland, OH 44110
800-321-7628 t • 216-531-9596 f

Packaging

PLASTOL 341 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

PLASTOL 341 meets or exceeds the requirements of:

- ASTM C 494, Type A and Type F
- AASHTO M 194
- ANSI/NSF STD 61 registered

Directions for Use

PLASTOL 341 has a recommended dosage range of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material.

PLASTOL 341 should be added to the initial batch water when possible. It should not come in contact with dry cement or other admixtures until they are mixed with the concrete batch. Field testing is strongly recommended to optimize dosage range and performance expectations with local materials.

PLASTOL 341 is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions/Limitations

- Care should be taken to maintain PLASTOL 341 above freezing.
- Never agitate with air.
- Add to concrete mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ 341S

Mid/High Range Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL 341S is a mid/high range water reducing and plasticizing polycarboxylate based admixture for concrete. PLASTOL 341S shows improved finishing characteristics when compared to other commonly used Type A (typically 5 - 6% water reduction) or Type F (typically 12 - 15% water reduction) admixtures. This mid range approach to water reducing admixtures allows for a wide range of usable dosage rates for a broad application spectrum. PLASTOL 341S contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Precast concrete
- Cast in place
- Self-consolidating concrete
- Concrete mixtures utilizing Fly Ash, Slag or other natural pozzolans

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Improves setting times
- Superior slump retention

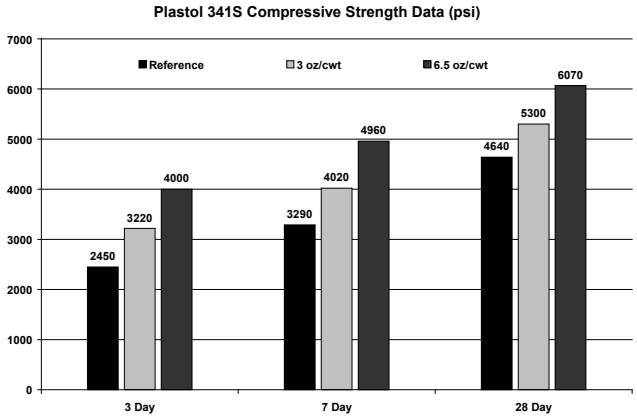
Hardened Concrete

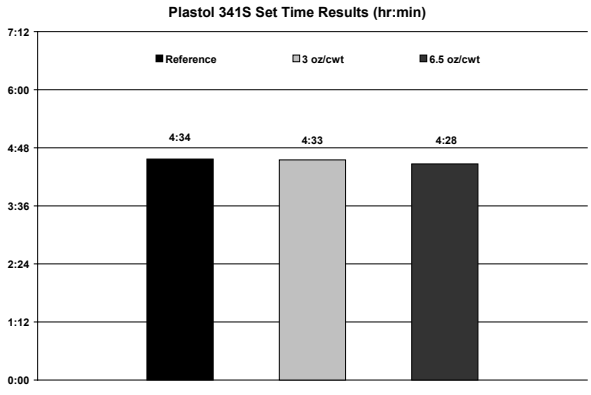
- Increases early and late age strengths
- Reduces permeability
- Increases durability

Technical Information

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 341S.





Packaging

PLASTOL 341S is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

PLASTOL 341S meets or exceeds the requirements of:

- ASTM C 494, Type A and Type F
- AASHTO M 194

Directions for Use

PLASTOL 341S has a recommended dosage range of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

PLASTOL 341S should be added to the initial batch water when possible. It should not come in contact with dry cement or other admixtures until they are mixed with the concrete batch. Field testing is strongly recommended to optimize dosage range and performance expectations with local materials. PLASTOL 341S is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions/Limitations

- Care should be taken to maintain PLASTOL 341S above freezing.
- Never agitate with air.
- Add to concrete mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ 5000

High Range Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL 5000 is a high range water reducing, polycarboxylate based admixture for concrete. PLASTOL 5000 increases concrete strength at all ages, can be used to produce increased slump and can significantly reduce the water demand of concrete mixtures. PLASTOL 5000 can be added at the plant or job site and is compatible with other admixtures. PLASTOL 5000 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- High performance concrete
- Self-compacting concrete
- Precast / prestressed concrete
- Low water/cement ratio concrete
- High early strength applications

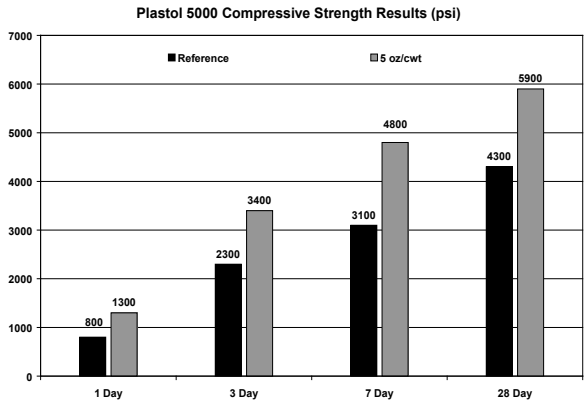
Features/Benefits

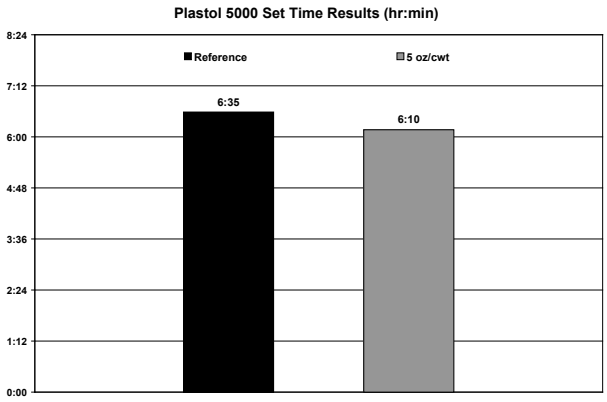
- Low water/cement ratio reduces water demand
- Self-compacting concrete reduces labor costs
- High early strength reduces energy costs
- Controlled setting times reduces labor costs

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 5000.





Packaging

PLASTOL 5000 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

Fully complies with the requirements of:

- ASTM C 494, Type A & F admixture and AASHTO M 194 Type A & F admixture.
- ASTM C 1017 as a Type I admixture.

Directions for Use

PLASTOL 5000 has a recommended dosage range of 3 to 15 oz per 100 lbs (200 to 980 mL per 100 kg) of cementitious material.

Dosage recommendations depend on characteristics of the materials being used in the mix design. Higher dosages are acceptable with testing and confirmation of the desired performance with specific materials used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of PLASTOL 5000 will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be done to verify plastic and hardened performance with local materials. If the material gradations are not optimum for SCC, a viscosity modifier may be used to improve the quality of the mix. Please consult a local Euclid Chemical Sales Professional regarding trial mixtures and dosage recommendations.

PLASTOL 5000 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed dispensing directly on the freshly batched concrete.

It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch. PLASTOL 5000 is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions / Limitations

- Care should be taken to maintain PLASTOL 5000 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance, use a circulation pump or small paddle mixer instead.
- If re-dosing PLASTOL 5000 at the job site, it is recommended that the air content of the concrete mix is checked to conform to job specifications.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ 5700

High Range Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL 5700 is a ready to use high range water reducing admixture for concrete specifically engineered to provide maximum water reduction, slump flow, and high strengths in precast concrete applications. PLASTOL 5700 is capable of reducing water demand by up to 40%. Use in high performance concrete applications or self-consolidating concrete. PLASTOL 5700 contains no added chlorides or chemicals known to promote corrosion of steel.

Primary Applications

- High performance concrete
- Self-consolidating concrete
- Precast/prestressed concrete
- Low water/cement ratio concrete
- High early strength applications

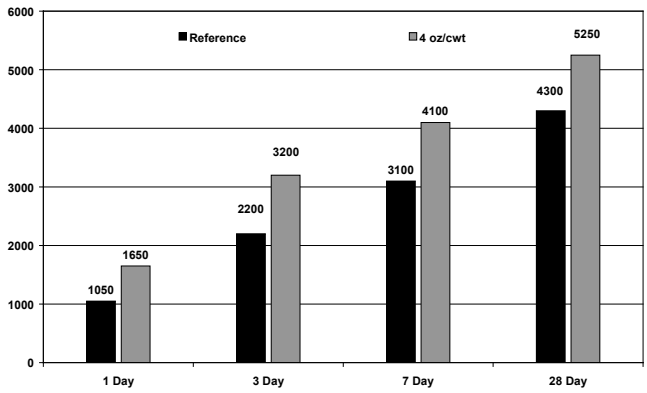
Features/Benefits

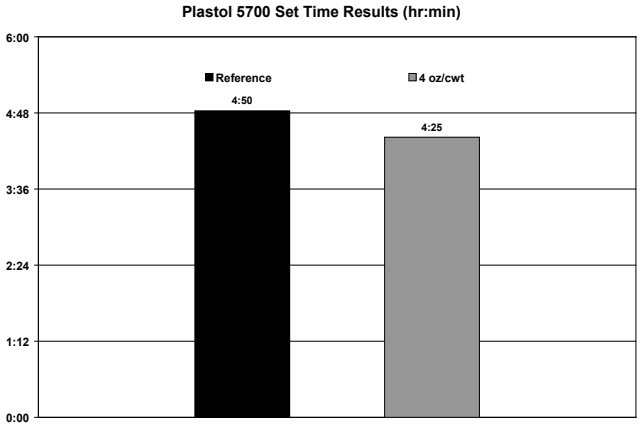
- Improved appearance with SCC mixes
- High early and ultimate strengths
- Maximized efficiency for slump or flow increase
- Reduced discharge time in forms
- Enables cement reduction
- Efficient use of labor, materials and equipment

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 5700.





Packaging

PLASTOL 5700 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

- Fully complies with the requirements of:
- ASTM C 494, Types A & F admixture
- AASHTO M 194 Types A & F admixture
- ASTM C 1017, as a Type I admixture

Directions for Use

PLASTOL 5700 has a recommended dosage range of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of PLASTOL 5700 will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be done to verify plastic and hardened performance with local materials. If the material gradations are not optimum for SCC, a viscosity modifier may be used to improve the quality of the mix. Please consult a local Euclid Chemical Sales Professional regarding trial mixtures and dosage recommendations.

PLASTOL 5700 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed dispensing directly on the freshly batched concrete.

It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch. PLASTOL 5700 is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions / Limitations

- Care should be taken to maintain PLASTOL 5700 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- If re-dosing PLASTOL 5700 at the job site, it is recommended that the air content is checked to conform to job specifications.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ 6200EXT

Extended Workability High Range Water Reducing Admixture

EUCLID CHEMICAL

Description

Plastol 6200EXT is a high range water reducing admixture formulated using advanced polycarboxylate technology. This admixture is specifically engineered for concrete to provide extended workability retention which minimizes the need for job site slump adjustments, while maintaining consistent air contents from batching to placing of concrete. In addition, PLASTOL 6200EXT maintains the typical benefits of polycarboxylate technology of high compressive strengths, flexural strength, and excellent setting characteristics. PLASTOL 6200EXT can be used to reduce the total cement content and used with supplementary cementitious materials. PLASTOL 6200EXT contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete with maximum water reduction requirements
- Excellent workability retention without set retardation
- Self-Consolidating Concrete (SCC)
- Low water/cement ratio concrete
- High-performance concrete
- Precast / prestressed concrete
- Flatwork and mass concrete
- Pervious concrete

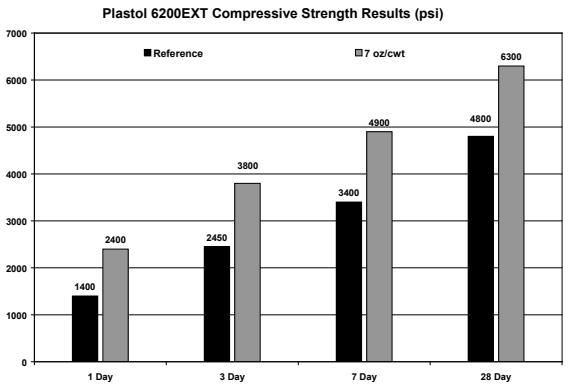
Features/Benefits

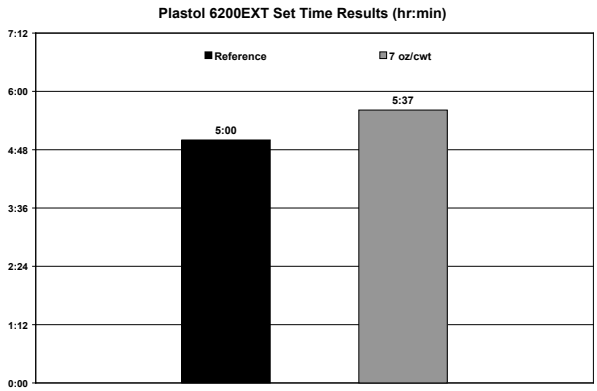
- Provides exceptional workability
- Consistent control of air content
- Higher early and ultimate strengths
- Reduces or eliminates job-site addition of HRWR
- Lowers number of rejected concrete loads
- Aids in concrete placement and reduces labor cost

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 6200EXT.





Packaging

PLASTOL 6200EXT is available in bulk, 275 gal (1041L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container

Specifications/Compliances

PLASTOL 6200EXT admixture fully complies with the requirements of:

- ASTM C 494/C 494M
- AASHTO M 194 Type A & F admixture
- ASTM C 1017 as a Type I admixture

Directions for Use

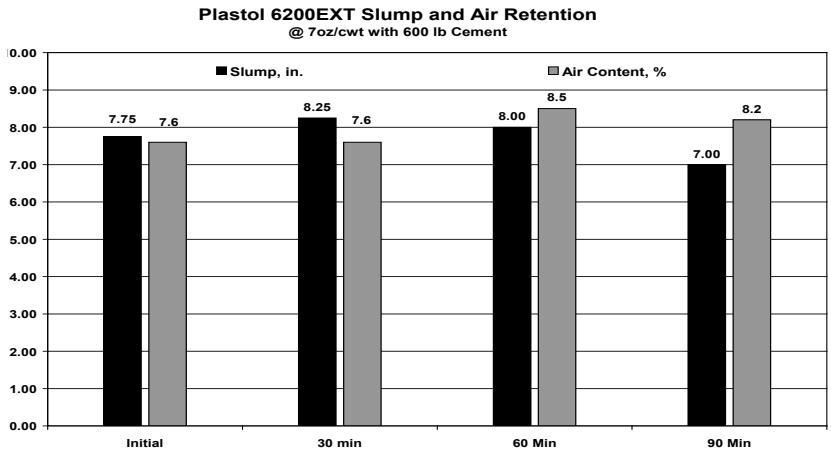
PLASTOL 6200EXT has a recommended dosage range of 3 to 12 oz per 100 lbs (200 to 780 mL per 100 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of PLASTOL 6200EXT will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be run to verify plastic and hardened performance with local materials. If the material gradations are not optimum for SCC, a viscosity modifier may be used to improve the quality of the mix. Please consult a local Euclid Chemical Sales Professional for trial mixtures and dosage recommendations.

PLASTOL 6200EXT can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed batching directly on the freshly batched concrete. It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch.

PLASTOL 6200EXT is compatible with most admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.



Precautions / Limitations

- Care should be taken to maintain PLASTOL 6200EXT above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- If re-dosing PLASTOL 6200EXT at the job site, it is recommended that the air content is checked to conform to job specifications.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ 6400

High Range Water Reducer - Superplasticizer

EUCLID CHEMICAL

Description

Plastol 6400 is a polycarboxylate based high range water reducing admixture which enables concrete to be produced with very low water to cement ratios. Plastol 6400 produces flowable and self-consolidating concrete at low doses and can obtain up to 45% water reduction. Plastol 6400 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- High performance concrete
- Negative slump concrete
- Heavily reinforced concrete
- Flatwork and mass concrete
- High early strength concrete
- Precast / prestressed concrete
- High slump, flowable concrete

Features/Benefits

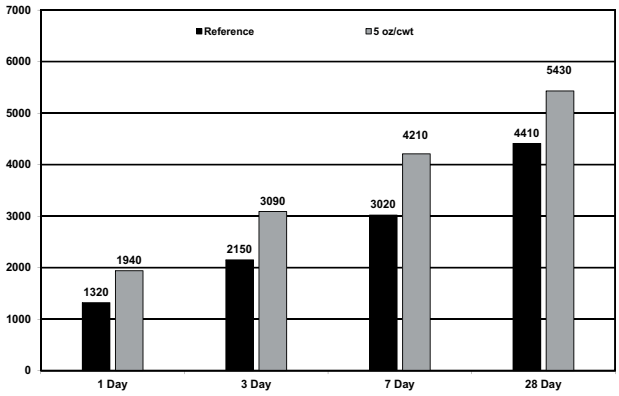
- Produces low water content and low water/cement ratio concrete allowing higher strengths
- Produces flowing concrete with quicker stripping strengths
- Aids in concrete placement and reduces labor cost
- When used in precast work with Type I and Type III cements, Plastol 6400 will produce very high early strengths
- Improved air stability characteristics

Technical Information

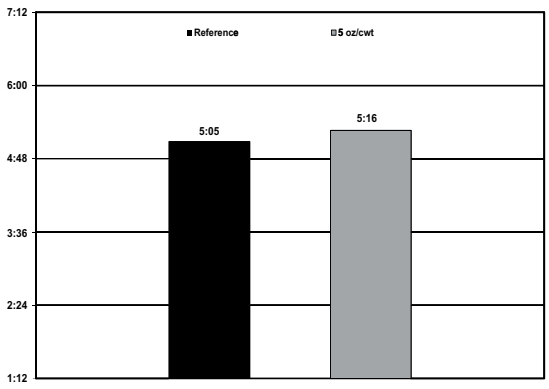
Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 6400.

Plastol 6400 Compressive Strength Data (psi)



Plastol 6400 Set Time Results (hr:min)



Packaging

PLASTOL 6400 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container

Specifications/Compliances

- Complies with the requirements of ASTM C 494, Types A & F admixtures
- Complies with ASTM C 1017 as a Type I admixture
- Complies with the requirements of AASHTO M 194
- ANSI/NSF STD 61 registered

Directions for Use

PLASTOL 6400 has a recommended dosage range of 3 to 12 oz per 100 lbs (200 to 780 mL per 100 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of PLASTOL 6400 will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be run to verify plastic and hardened performance with local materials. If the material gradations are not optimum for SCC, a viscosity modifier may be used to improve the quality of the mix. Please consult a local Euclid Chemical Sales Professional for trial mixtures and dosage recommendations.

PLASTOL 6400 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed batching directly on the freshly batched concrete.

It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch. PLASTOL 6400 is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions / Limitations

- Care should be taken to maintain PLASTOL 6400 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance, use a circulation pump or small paddle mixer instead.
- If re-dosing PLASTOL 6400 at the job site, it is recommended that the air content of the concrete mix is checked to conform to job specifications.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ 6420

Mid/High Range - Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL 6420 is a mid/high range water reducing and plasticizing polycarboxylate based admixture for concrete. PLASTOL 6420 shows improved finishing characteristics when compared to other commonly used Type A (typically 5 - 6% water reduction) or Type F (typically 12 - 15% water reduction) admixtures. This mid range approach to water reducing admixtures allows for a wide range of usable dosage rates for a broad application spectrum. PLASTOL 6420 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Precast concrete
- Cast in place
- Self-consolidating concrete (SCC)
- Concrete mixtures utilizing Fly Ash, Slag or other natural pozzolans

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Improves setting times
- Superior slump retention
- Improved air consistency

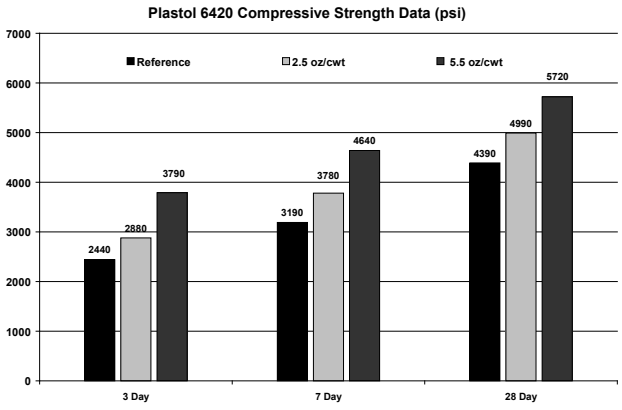
Hardened Concrete

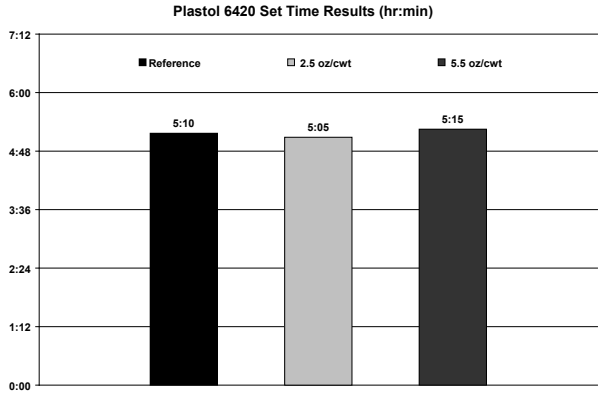
- Increases early and late age strengths
- Reduces permeability
- Increases durability

Technical Information

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 6420.





Packaging

PLASTOL 6420 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

PLASTOL 6420 meets or exceeds the requirements of:

- ASTM C 494, Type A and Type F
- ASTM C 1017 as a Type I admixture
- AASHTO M 194
- ANSI/NSF STD 61 registered

Directions for Use

PLASTOL 6420 has a recommended dosage range of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material.

Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

Dosages of PLASTOL 6420 to make SCC will vary depending on mixture design. Trial mixtures should be run to verify plastic and hardened performance with local materials.

PLASTOL 6420 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed dispensing directly on the freshly batched concrete.

PLASTOL 6420 should not come in contact with dry cement or other admixtures until they are mixed with the concrete batch. Field testing is strongly recommended to optimize dosage range and performance expectations with local materials. PLASTOL 6420 is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions/Limitations

- Care should be taken to maintain PLASTOL 6420 above freezing.
- Never agitate with air.
- Add to concrete mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ 6425

High Range Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL 6425 is a ready to use polycarboxylate based, high range water reducing admixture for concrete. PLASTOL 6425 increases early concrete strength as well as ultimate strength. PLASTOL 6425 can be used to produce increased concrete slump or to significantly reduce water demand for a specific slump. PLASTOL 6425 can be added at the plant or job site and is compatible with other Euclid Chemical admixtures. PLASTOL 6425 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- High performance concrete
- Self-compacting concrete
- Precast concrete
- Low water/cement ratio concrete
- High early strength applications

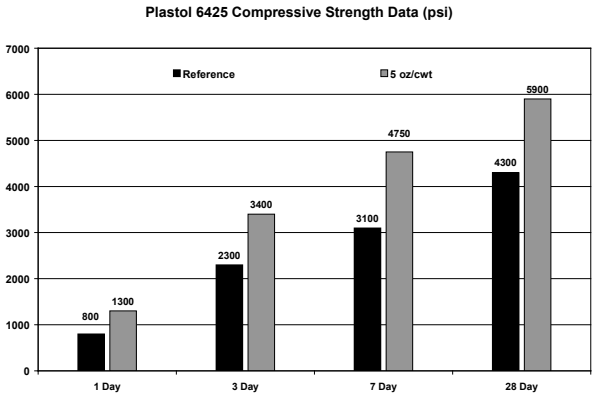
Features/Benefits

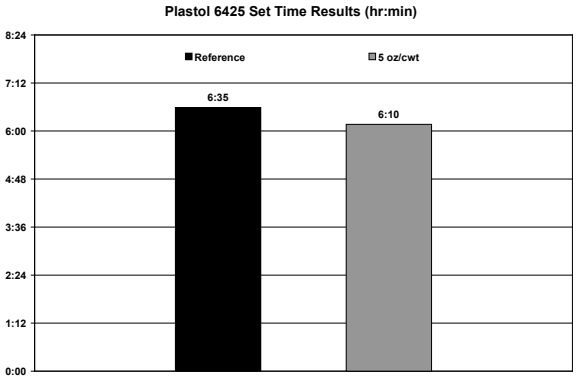
- Low water/cement ratio reduces water demand
- Self-compacting concrete reduces labor costs
- High early strength reduces energy costs
- Controlled setting times reduces labor costs
- Consistent air content

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL 6425.





Packaging

PLASTOL 6425 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

Fully complies with the requirements of:

- ASTM C 494, Type A & F admixture and AASHTO M 194 Type A & F admixture.
- ASTM C 1017 as a Type I admixture.

Directions for Use

PLASTOL 6425 has a recommended dosage range of 3 to 15 oz per 100 lbs (200 to 980 mL per 100 kg) of cementitious material. Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of PLASTOL 6425 will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be run to verify plastic and hardened performance with local materials. If the material gradations are not optimum for SCC, a viscosity modifier may be used to improve the quality of the mix. Please consult a local Euclid Chemical Sales Professional for trial mixtures and dosage recommendations.

PLASTOL 6425 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed batching directly on the freshly batched concrete.

It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch. PLASTOL 6425 is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions / Limitations

- Care should be taken to maintain PLASTOL 6425 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance, use a circulation pump or small paddle mixer instead.
- If re-dosing PLASTOL 6425 at the job site, it is recommended that the air content of the concrete mix is checked to conform to job specifications.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ SPC

High Range Water Reducer - Superplasticizer

EUCLID CHEMICAL

Description

PLASTOL SPC is a polycarboxylate based high range water-reducing admixture which enables concrete to be produced with very low water to cement ratios. PLASTOL SPC produces flowable and self-consolidating concrete at low doses and can obtain up to 45% water reduction. PLASTOL SPC contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- High performance concrete
- Negative slump concrete
- Heavily reinforced concrete
- Flatwork and mass concrete
- High early strength concrete
- Precast / prestressed concrete
- High slump, flowable concrete
- Self-Consolidating Concrete (SCC)
- Low Water / Cement ratio concrete
- Ready-mix concrete

Features/Benefits

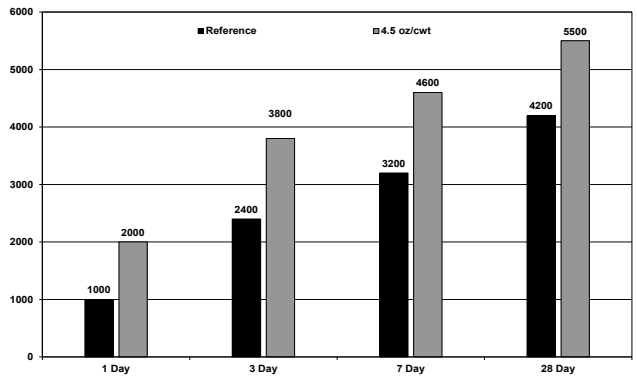
- PLASTOL SPC will produce very high early strengths when used in precast work with Type I and Type III cements
- Produces low water/cement ratio concrete allowing higher strengths
- Produces flowing concrete with quicker stripping strengths
- Aids in concrete placement and reduces labor cost
- Higher early and ultimate strengths

Technical Information

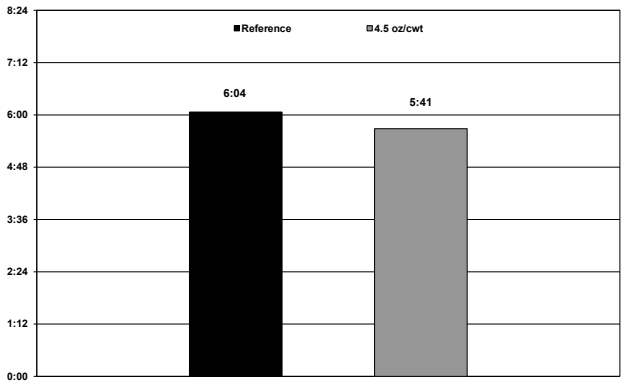
Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL SPC.

Plastol SPC Compressive Strength Results (psi)



Plastol SPC Set Time Results (hr:min)



Packaging

PLASTOL SPC is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

- Fully complies with the requirements of ASTM C 494, Types A & F admixtures.
- Complies with the requirements of AASHTO M 194.

Directions for Use

PLASTOL SPC has a recommended dosage range of 3 to 12 oz per 100 lbs (200 to 780 mL per 100 kg) of cementitious material. Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of PLASTOL SPC will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be run to verify plastic and hardened performance with local materials. If the material gradations are not optimum for SCC, a viscosity modifier may be used to improve the quality of the mix. Please consult a local Euclid Chemical Sales Professional for trial mixtures and dosage recommendations.

PLASTOL SPC can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed batching directly on the freshly batched concrete.

It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch. PLASTOL SPC is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions / Limitations

- Care should be taken to maintain PLASTOL SPC above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance, use a circulation pump or small paddle mixer instead.
- If re-dosing PLASTOL SPC at the job site, it is recommended that the air content of the concrete mix is checked to conform to job specifications.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ ULTRA 209

High Range Water Reducing Admixture

EUCLID CHEMICAL

Description

PLASTOL ULTRA 209 high range water reducing admixture employs the latest advancements in polycarboxylate technology and is formulated to meet the demands of the precast / pre-stressed concrete industry. PLASTOL ULTRA 209 maximizes cement efficiency, maintains consistent air contents, and has excellent set/strength gain characteristics. PLASTOL ULTRA 209 also improves concrete flow, finishing, and formed surface appearance. It provides compressive and flexural strength gains that can lower cement requirements and extend the use of supplementary cementitious materials. PLASTOL ULTRA 209 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Precast / pre-stressed concrete
- Self-Consolidating Concrete (SCC)
- High slump, flowable concrete
- Low water to cement ratio concrete
- High early strength concrete
- Ready-mix concrete
- Flatwork and mass concrete
- Pervious concrete

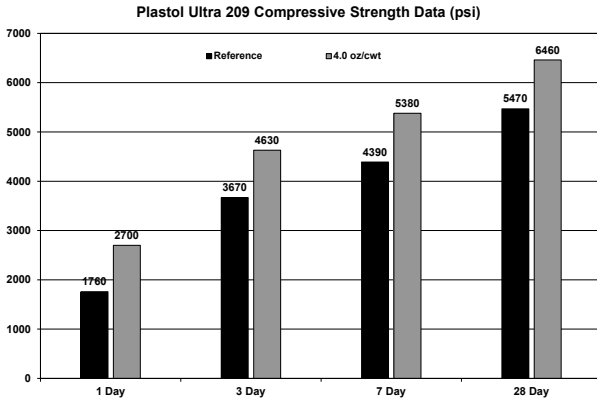
Features/Benefits

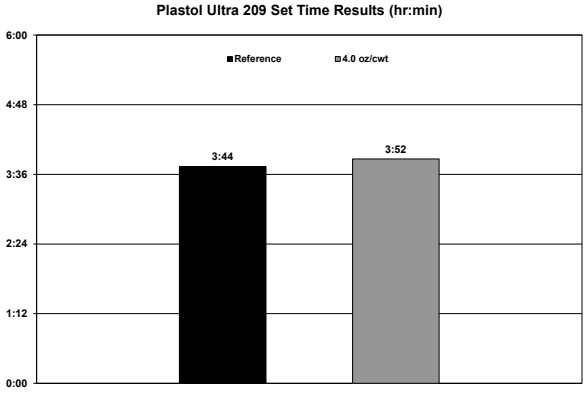
- Superior slump gain
- Consistent control of air content
- Improved cement hydration
- Low dosage, high efficiency
- Higher early and ultimate strengths
- Lowers number of rejected concrete loads
- Quicker stripping times
- Aids in concrete placement and reduces labor cost
- Improved finishability

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of PLASTOL ULTRA 209.





Packaging

PLASTOL ULTRA 209 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

- Fully complies with the requirements of ASTM C 494, Types A & F admixtures.
- Complies with the requirements of AASHTO M 194.

Directions for Use

PLASTOL ULTRA 209 has a recommended dosage range of 2 to 12 oz per 100 lbs (130 to 780 mL per 100 kg) of cementitious material. PLASTOL ULTRA 209 can provide excellent performance for most applications at dosage rates of 2 to 7 oz per 100 lbs (130 to 460 mL per 100 kg) of cementitious material. For SCC concrete or high performance mixtures dosage rates of 7 to 12 oz per 100 lbs (460 to 780 mL per 100 kg) of cementitious material can be used. Dosage recommendations depend on the characteristics of the materials being used in the mix design. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of PLASTOL ULTRA 209 will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be run to verify plastic and hardened performance with local materials. If the material gradations are not optimum for SCC, a viscosity modifier may be used to improve the quality of the mix. Please consult a local Euclid Chemical Sales Professional for trial mixtures and dosage recommendations.

PLASTOL ULTRA 209 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions. However, better results have been observed batching directly on the freshly batched concrete.

It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch. PLASTOL ULTRA 209 is compatible with other Euclid Chemical admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions / Limitations

- Care should be taken to maintain Plastol ULTRA 209 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance, use a circulation pump or small paddle mixer instead.
- If re-dosing Plastol ULTRA 209 at the job site, it is recommended that the air content of the concrete mix is checked to conform to job specifications.
- In all cases, consult the Safety Data Sheet before use.

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SPECIALTY PRODUCTS

EUCON™ AIR-DOWN

Air Detrainer and Concrete Defoamer

EUCLID CHEMICAL

Description

EUCON AIR-DOWN is a dry powdered defoaming admixture designed for use in plastic/wet concrete or dry blended materials. It decreases foaming and minimizes air entrainment in cement slurries, grouts, concrete, and mortars. It is also used to counteract the air entrainment caused by some cements and superplasticizers. EUCON Air-Down is available in a patented water-soluble inner bag for convenient use at the plant of job site. EUCON Air-Down contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready Mix Concrete
- Precast Concrete
- Concrete Floors
- Heavy Weight Concrete
- Other concrete applications where the air content is needed to be adjusted by a few percent

Features/Benefits

- Reduces the amount of rejected concrete
- Reduces the entrained air caused by some superplasticizers
- Recommended for the production of heavy weight concrete
- Increases the unit weight of concrete
- Allows for high-speed mixing of cement, fly ash, and other cementitious materials without foaming
- May increase compressive strength of concrete

Technical Information

Specific gravity.....1.35
Bulk Density.....25.2 lb/ft^3
Color.....Tan Powder
Odor.....Slight

Packaging

EUCON Air-Down is available in Cases of 24 dissolvable 500 g (1.1 lb) bags.

Shelf Life

3 years in original, unopened container

Specifications/Compliances

EUCON AIR OUT meets or exceeds the requirements of ASTM C 494 Type S

Directions for Use

EUCON Air-Down for wet or dry mixes.

For Wet-Mix Concrete:

1- Determine the amount of Eucon Air-Down required. See Recommended Dosage Rate.

2- Each 1.1 lb (500g) package is double bagged. Remove the outer bag and add the entire inner water-soluble Eucon Air-Down bag and contents to the plastic/wet concrete. The entire inner bag will easily dissolve.

3- Mix at high speed for about 5 minutes to insure that the Eucon Air-Down is uniformly dispersed throughout the mix.

4- Concrete containing Eucon Air-Down may be redosed to achieve the desired level of air entrainment.

For Dry Mixes:

1- Determine the amount of Eucon Air-Down required. See Recommended Dosage Rate.

2- Blend thoroughly as a dry powder into dry mixes.

Recommended Dosage Rate

Wet-Mix Concrete: To reduce air content by 1 - 2%, use one bag of Eucon Air-Down for every 1 - 3 yards (1 - 2 cubic meters) of concrete. For best results, add Eucon Air-Down at the beginning of the batching sequence. Testing is recommended to determine the best mix design for your specific materials.

Dry Mixes: Recommended Dosage is 0.1% to 0.5% by weight of cement for dry-blended materials. Since many factors may affect air content in concrete, testing with your specific materials is recommended to determine the optimum dosage rate.

Contact your local Euclid Chemical sales representative for additional technical assistance.

Precautions/Limitations

- EUCON Air-Down is compatible with other Euclid Chemical Admixtures. All Admixtures should be added independently of other admixtures.
- If air-entrainer is accidently overdosed the Eucon Air-Down may not be powerful enough to overcome very high levels of entrained air.
- In all cases, please consult the Safety Data Sheet before use.

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EUCON™ AIR OUT

Air Detrainer

EUCLID CHEMICAL

Description

EUCON AIR OUT is a stable admixture designed to completely remove the air content in a designed non-air entrained concrete mix. It decreases foaming and minimizes air entrainment in cement slurries, grouts, concrete, and mortars. It is also used to counteract the air entrainment caused by some cements and superplasticizers. EUCON AIR OUT contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready Mix Concrete
- Precast Concrete
- Concrete Floors
- Heavy Weight Concrete
- Other concrete applications where minimal air content is desired

Features/Benefits

- Reduces the amount of rejected concrete
- Reduces the entrained air caused by some superplasticizers
- Recommended for the production of heavy weight concrete
- Increases the unit weight of concrete
- Allows for high-speed mixing of cement, fly ash, and other cementitious materials without foaming
- May increase compressive strength of concrete

Technical Information

Specific gravity 1.00
Color ..... clear
Flash point ..... >201°F (>94°C)

Packaging

EUCON AIR OUT is available in cases of 6/1 gal (3.8 L) units, 5 gallon (18.9 L) pails, and 55 (208 L) gallon drums.

Shelf Life

3 years in original, unopened container

Specifications/Compliances

EUCON AIR OUT meets or exceeds the requirements of ASTM C 494 Type S

Directions for Use

EUCON AIR OUT can be added during or after batching, but should not come in direct contact with the cementitious components (cement, slag, or fly ash) of the mix. However, best results have been experienced when added at the end of batching all other materials.

EUCON AIR OUT is typically dosed at 1 to 2 oz/yd^3 (40 – 75 mL/m^3). Specific applications may require higher dosages to totally eliminate the entrapped air and achieve the appropriate performance of the EUCON AIR OUT.

*Please contact your local Euclid sales representative for recommendations other than completely eliminating the air content in the mix. Test mixes should be done in these special cases to confirm the expected behavior of the product because of the strong detraining nature of the Eucon Air Out.

Precautions/Limitations

- Keep EUCON AIR OUT above its Freeze Point of 15°F (-10°C).
- EUCON AIR OUT is compatible with other Euclid Chemical Admixtures. However, each admixture should be added to the mix independent of the other admixtures.
- In all cases, please consult the Safety Data Sheet before use.

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EUCON™ INTEGRAL ARC

Alkali Silica Reactivity Control Admixture

EUCLID CHEMICAL

Description

EUCON INTEGRAL ARC is a lithium nitrate based, specially formulated admixture designed to control alkali-silica reactivity (ASR) in concrete. When reactive silica has sufficient alkalies and moisture, a damaging expansive gel forms. This expansion will result in cracking and premature deterioration of concrete. Alkali-silica reactivity can be controlled when EUCON INTEGRAL ARC is introduced into the concrete mix at a recommended dose. Dosages will vary depending on the sodium equivalent of the cement and when used in combination with pozzolans such as Class F fly ash. EUCON INTEGRAL ARC contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Highways and bridges
- Airport runways
- Water treatment facilities
- Warehouses
- Energy/Power facilities
- Commercial buildings
- Piers and docks

Features/Benefits

- Mitigates ASR expansion and cracking
- Eliminates ASR-induced popouts
- No adverse effect on plastic or hardened concrete properties
- Easy to handle
- Use of available local materials
- Increases life span of concrete
- Can be used with appropriate pozzolans

Technical Information

Physical Properties

Material ..... Lithium Nitrate
Specific Gravity @ 77°F (25°C) 1.20
Freezing Point ..... 1.4°F (-17°C)
Boiling Point ..... 230°F (110°C)

Packaging

EUCON INTEGRAL ARC is available in 55 gallon (208 L) drums, 275 gallon (1041 L) totes, and bulk.

Shelf Life

2 years when stored above 32°F (0°C) in original, unopened container.

Specifications/Compliances

- ANSI/NSF STD 61
- Meets ASTM C 494 Types S

Directions for Use

EUCON INTEGRAL ARC is dosed based on the amount of sodium equivalent **(Na_2Oe) in cement. To control alkali-silica reactivity in concrete, add 0.55 gal of Eucon Integral ARC per pound of sodium equivalent in your cement. To maintain the same water to cement ratio subtract 0.85 gallons of mix water for each gallon of Eucon Integral ARC added.

Calculation to determine dosage rate of Eucon Integral ARC (English Units)

1. Consult the cement producer to determine the sodium equivalent in the cement. This amount is usually expressed as Na_2Oe, or "total alkali content" on the certificate of analysis.

2. Convert the sodium equivalent into a decimal. An example would be 0.6% Na_2oe=0.006 (conversion is as easy as moving the decimal to the left two places.)

3. Multiply the weight of the cement by 0.006. This number represents the amount of sodium equivalent needed to be treated in your concrete mixture. An example would be: 611 (lbs of cement/yd^3) X 0.006 (sodium equivalent in cement) = 3.666 (this number represents the pounds of sodium equivalent in your mix).

4. The Euclid Chemical Company recommends treating the sodium equivalent with 0.55 gallons of Eucon Integral ARC. Multiply 3.666 X 0.55 (recommended dose rate of ARC)=2.01 (gallons added per cubic yard of concrete).

5. For every gallon of Eucon Integral ARC added to a concrete mix, some water must be removed. Using the example from above, calculate your water adjustment by multiplying the number of gallons of Eucon Integral ARC by 0.85. This will give the amount of water (in gallons) subtracted from the original water requirements. Example: 2.01 (gallons of Integral ARC)X 0.85=1.71 gallons (water subtracted from the mix design).

**Sodium equivalent (Na_2Oe)=% Na_2O + 0.658 x %K_2O.

Calculation to determine dosage rate of Eucon Integral ARC (Metric Units)

1. Consult your cement producer to determine the sodium equivalent in your cement. This amount is expressed as Na_2Oe, or "Total alkali content" on the certificate of analysis. The dosage rate of EUCON INTEGRAL ARC is 4.63 L per kg of sodium equivalent in your cement.

2. Convert the sodium equivalent into a decimal. An example would be 0.6% Na_2Oe=0.006 (conversion is as easy as moving decimal to the left two places).

3. Multiply the weight of the cement by 0.006. This number represents the amount of sodium equivalent that needs to be treated in your concrete. An example would be 362.5 (kg of cement/m^3) X 0.006 (sodium equivalent in cement)=2.175 (this number represents the kg of sodium equivalent needed to be treated in your concrete).

4. The Euclid Chemical Company recommends treating the sodium equivalent with 4.63 liter of EUCON INTEGRAL ARC. Multiply 2.175 X 4.63=10.07 (liter added per m^3 of concrete).

5. For every liter of EUCON INTEGRAL ARC added to a concrete mix, some water must be removed from the mix design. Subtract 0.85 liter of water from the mix for every liter of EUCON INTEGRAL ARC added.

Example: 10.07 liters (EUCON INTEGRAL ARC) X 0.85=8.56 (liters of water subtracted from the mix design).

Calculation to determine dosage rate with pozzolans

Eucon Integral ARC dosages can be lowered when combined with suitable pozzolans such as Class F fly ash. Dosage reduction is dependent on the composition of the pozzolan, reactivity of the aggregate and overall mix design. Preliminary testing is highly recommended to determine optimum dosage rate. Consult your Euclid Chemical Company representative for dosing instructions and calculations.

Eucon Integral ARC is safe to use and requires no special equipment. Add Eucon Integral ARC with the original charge of mix water. Do not add directly to cement. Mix for a minimum of 3 minutes.

Precautions / Limitations

- Keep from freezing.
- Pre-job meetings and preliminary test pours should be performed in order to ensure appropriate fresh concrete properties response to the dosage rates prescribed.
- EUCON INTEGRAL ARC can act as an oxidizer if allowed to evaporate and form crystals.
- Store in a cool, dry area in a tightly sealed container. Keep separate from combustible, organic and oxidizable materials. Always reseal containers after use.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ BCN

Corrosion Inhibiting Admixture

EUCLID CHEMICAL

Description

EUCON BCN is a corrosion inhibiting admixture containing a minimum of 30% Calcium Nitrite, which is added to the concrete during the batching process. Eucon BCN is designed to inhibit the corrosion of steel reinforcement in concrete by chemically reacting with the reinforcing steel and prestressed strands in concrete, creating a ferric oxide passivating layer which resists chloride attack. EUCON BCN complies with ASTM C 1592 and ASTM C 494, Types C and E. EUCON BCN contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Exterior steel reinforced concrete
- Structural concrete
- Parking structures
- Precast / Prestressed concrete
- Post tensioned concrete
- Marine environments
- Exposed Balconies
- Bridge Components

Features/Benefits

- Extends service life of reinforced concrete structures
- Slows the rate of corrosion
- Provides set acceleration, reducing the need for additional accelerating admixtures in cold weather
- Compatible with other commonly used Euclid Chemical admixtures
- Dosage rate is directly related to expected chloride exposure
- Increases protection for reinforced steel and prestressed strands in ready mix and precast/prestressed concrete
- Calcium Nitrite is a proven technology with over 35 years of in-place service to the construction industry

Technical Information

Typical Engineering Data

The following results were developed under laboratory conditions.

Specific Gravity .....1.27 to 1.33
Unit Weight.....10.4 to 11.3 lb./gal
Freezing point ..... 0°F (-18°C)
Slump ..... little effect on the slump

Packaging

EUCON BCN is packaged in bulk, 275 gal (1041 L) totes, and 55 gal (208 L) drums.

Shelf Life

2 years in original, unopened container.

Specifications/Compliances

- ASTM C 1582
- ASTM Classification C 494 Type C and E
- AASHTO Classification M 194 Type C
- Corps of Engineers Classification CRD C 87 Type C

Directions for Use

Mix Designs

It is strongly recommended that trial mixes are conducted prior to the first placement of each project, to allow the concrete producer to determine the proper order of addition and required dosage rates of additional admixtures in the mix design.

EUCON BCN may be added with the concrete batch water. It should not be mixed with any other admixture prior to being introduced into the concrete mixer. Mix designs are supplied upon request.

It is necessary to adjust the mix water to account for the water in EUCON BCN. Subtract 7.0 pounds or 0.85 gallons of water per gallon of EUCON BCN.

Dosages

Corrosion Inhibitor

The recommended addition rates range for EUCON BCN is from 2 - 6 gal/yd^3 (10 - 30 L/m^3). The Chloride to Nitrite ratio is important. The project specification will indicate or specify the amount of chloride ion protection necessary. The dosage rate of EUCON BCN is directly related to the level of chloride protection and can be chosen from Table 1. EUCON BCN will accelerate concrete setting times at all recommended dosages. To counteract acceleration, use a retarder or hydration stabilizer such as EUCON RETARDER 75, EUCON RETARDER 100, EUCON STASIS or EUCON DS, see Table 2.

If no chloride ion protection level is specified, or when offsetting the potential effects of chloride bearing concrete ingredients consult contact your local Euclid Chemical technical representative. For further information refer to technical bulletin AD-17-1, "Offsetting Potential Corrosive Effects of Chlorides using Eucon BCN".

Set Acceleration

If used as an accelerator the EUCON BCN dosage range is 10 - 90 oz/cwt (650 - 5870 mL per 100 kg) of cementitious materials.

Table 1
Chloride Protection Limit lb/yd^3 (kg/m^3)

EUCON BCN gal/yd^3 (L/m^3)	Chloride lbs/yd^3 (kg/m^3)
2.0 (10.0)	6.0 (3.6)
2.5 (12.5)	8.0 (4.8)
3.0 (15.0)	9.9 (5.9)
3.5 (17.5)	11.5 (6.8)
4.0 (20.0)	13.0 (7.7)
4.5 (22.5)	14.1 (8.4)
5.0 (25.0)	15.0 (8.9)
6.0 (30.0)	16.0 (9.5)

Table 2
Dosage of EUCON BCN with RETARDER 100

EUCON BCN gal/yd^3 (L/m^3)	Retarder 100 @ 70°F oz/cwt (mL/100kg cementitious)
3.0 to 4.0 (15.0 - 20.0)	3.0 to 5.0 (195 - 325)
4.0 to 5.5 (20.0 - 27.5)	4.0 to 7.0 (260 - 455)
5.5 to 6.0 (27.5 - 30.0)	5.0 to 8.0 (325 - 520)

*****Dosage rates will vary depending on other retarding admixtures*

Precautions / Limitations

- Store at temperatures above 0°F (-18°C). When EUCON BCN freezes, its corrosion inhibition is completely restored by thawing and thorough agitation.
- Do not dispense directly onto dry cement.
- Quality concrete is necessary to slow the ingress of chloride into the concrete. According to ACI 318, the "Building Codes Requirements for Reinforced Concrete" requires certain design constraints, such as maximum water to cement ratio and providing adequate cover over the reinforcing steel. All pertinent codes and guides should be consulted prior to final approval of mix design.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ CIA

Corrosion Inhibiting Admixture

EUCLID CHEMICAL

Description

EUCON CIA is a corrosion inhibiting admixture containing a minimum of 30% Calcium Nitrite, which is added to the concrete during the batching process. EUCON CIA is designed to inhibit the corrosion of steel reinforcement in concrete. The alkalinity (high pH) of the pore solution in concrete promotes the development of a corrosion resistant film called the passivating layer on the reinforcing steel. In non-aggressive environments this film composed of ferric oxides and ferrous oxides (defects) is insoluble but in presence of chlorides, those defects form complexes that destabilize the passivating layer. EUCON CIA provides nitrite ions to compete with the chloride ions and convert the ferrous oxides into stable ferric oxides, hence protecting the reinforcing steel by delaying the onset of corrosion. EUCON CIA complies with ASTM C 1592 and ASTM C 494, Types C and E. EUCON CIA contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Exterior steel reinforced concrete
- Structural concrete
- Parking structures
- Precast / Prestressed concrete
- Post tensioned concrete
- Marine environments
- Exposed Balconies
- Bridge Components

Features/Benefits

- Extends service life of reinforced concrete structures
- Slows the rate of corrosion
- Provides set acceleration, reducing the need for additional accelerating admixtures in cold weather
- Compatible with other commonly used Euclid Chemical admixtures
- Dosage rate is directly related to expected chloride exposure
- Increases protection for reinforced steel and prestressed strands in ready mix and precast/prestressed concrete
- Calcium Nitrite is a proven technology with over 35 years of in-place service to the construction industry

Technical Information

Typical Engineering Data

The following results were developed under laboratory conditions.

Specific Gravity .....1.27 to 1.33
Unit Weight.....10.4 to 11.3 lb./gal
Freezing point ..... 0°F (-18°C)
Slump ..... little effect on the slump

Packaging

EUCON CIA is packaged in bulk, 275 gal (1041 L) totes, and 55 gal (208 L) drums.

Shelf Life

2 years in original, unopened container.

Specifications/Compliances

- ASTM C 1582
- ASTM Classification C 494 Type C and E
- AASHTO Classification M 194 Type C
- Corps of Engineers Classification CRD C 87 Type C

Directions for Use

Mix Designs

It is strongly recommended that trial mixes are conducted prior to the first placement of each project, to allow the concrete producer to determine the proper order of addition and required dosage rates of additional admixtures in the mix design.

EUCON CIA may be added with the concrete batch water. It should not be mixed with any other admixture prior to being introduced into the concrete mixer. Mix designs are supplied upon request.

It is necessary to adjust the mix water to account for the water in EUCON CIA. Subtract 7.0 pounds or 0.85 gallons of water per gallon of EUCON CIA.

Dosages

Corrosion Inhibitor

The recommended addition rates range for EUCON CIA is from 2 - 6 gal/yd^3 (10 - 30 L/m^3). The Chloride to Nitrite ratio is important. The project specification will indicate or specify the amount of chloride ion protection necessary. The dosage rate of EUCON CIA is directly related to the level of chloride protection and can be chosen from Table 1. EUCON CIA will accelerate concrete setting times at all recommended dosages. To counteract acceleration, use a retarder or hydration stabilizer such as EUCON RETARDER 75, EUCON RETARDER 100, EUCON STASIS or EUCON DS, see Table 2.

When offsetting the potential effects of chloride bearing concrete ingredients a lower dosage of Eucon CIA may be used. If no chloride ion protection level is specified or if offsetting the potential effects of chloride bearing ingredients, consult your local Euclid Chemical technical representative. For further information refer to technical bulletin AD-17-1, "Offsetting Potential Corrosive Effects of Chlorides using Eucon CIA".

Set Acceleration

If used as an accelerator the EUCON CIA dosage range is 10 - 90 oz/cwt (650 - 5870 mL per 100 kg) of cementitious materials.

Table 1
Chloride Protection Limits

EUCON CIA, gal/yd^3 (L/m^3)	Chloride content, lbs/yd^3 (kg/m^3)
2.0 (10.0)	6.0 (3.6)
2.5 (12.5)	8.0 (4.8)
3.0 (15.0)	9.9 (5.9)
3.5 (17.5)	11.5 (6.8)
4.0 (20.0)	13.0 (7.7)
4.5 (22.5)	14.1 (8.4)
5.0 (25.0)	15.0 (8.9)
6.0 (30.0)	16.0 (9.5)

Table 2
Dosage of EUCON CIA with RETARDER 100

EUCON CIA gal/yd^3 (L/m^3)	Retarder 100 @ 70°F oz/cwt (mL/100kg) (cementitious)
3.0 to 4.0 (15.0 - 20.0)	3.0 to 5.0 (195 - 325)
4.0 to 5.5 (20.0 - 27.5)	4.0 to 7.0 (260 - 455)
5.5 to 6.0 (27.5 - 30.0)	5.0 to 8.0 (325 - 520)

*****Dosage rates will vary depending on other retarding admixtures.*

Precautions / Limitations

- Store at temperatures above 0°F (-18°C). When EUCON CIA freezes, its corrosion inhibition is completely restored by thawing and thorough agitation.
- Do not dispense directly onto dry cement.
- Quality concrete is necessary to slow the ingress of chloride into the concrete. According to ACI 318, the "Building Codes Requirements for Reinforced Concrete" requires certain design constraints, such as maximum water to cement ratio and providing adequate cover over the reinforcing steel. All pertinent codes and guides should be consulted prior to final approval of mix design.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ EASY FILL

Admixture For Flowable Fill

EUCLID CHEMICAL

Description

EUCON EASY FILL is a ready to use liquid admixture designed to increase the air content of controlled flowable fill. EUCON EASY FILL may be used with set controlling and modifying admixtures. EUCON EASY FILL should only be used in Controlled Low Strength Material (CLSM) with pre-determined hardened properties. EUCON EASY FILL contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Street and highway surfaces
- Utility excavations
- Building excavations
- Back-fill applications
- Pipe bedding
- Road base

Features/Benefits

- Controlled low strength, easy to excavate
- Non-bleeding, reduced settlement material resulting in volume stable installation
- High flow reducing labor costs
- Economical, reducing costs
- Self compaction - no vibration

Technical Information

Appearance: EUCON EASY FILL is an amber colored material.

Packaging

EUCON EASY FILL is packaged in 4/1 gal (3.8 L) and 12/1 qt (950 ml) cases. EUCON EASY FILL should be stored at temperatures above 32°F (0°C). Contact your local Euclid sales professional for dispensing bottles.

Shelf Life

2 years in original, unopened container.

Directions for Use

Compatibility

EUCON EASY FILL is compatible with most other concrete admixtures. Contact your local Euclid Chemical Representative for details and mix recommendations. Do not use EUCON EASY FILL in conventional concrete.

Usage Information

EUCON EASY FILL should be used in mixes with an initial slump of 1" to 2" (25 to 50 mm). Do not exceed 3" (75mm) initial slump. The addition rate of EUCON EASY FILL should be 3 oz (115 ml/m^3) per cubic yard of material. EUCON EASY FILL should be deposited directly on the material, preferably job site added, for best results.

After addition of EUCON EASY FILL mix for a minimum of 5 minutes at mixing speed. The target final slump should be 7" to 9" (180-230 mm). Air content will be material dependent. Expected air contents should be in the 25% to 35% range using ASTM C 33 concrete sand. Material mixes should be adjusted for yield dependent on air content.

Material Mixes

EUCON EASY FILL material mixes should be designed using local material to meet specific job site specifications. Contact your local Euclid Chemical Representative for a starting point in proportioning material mixes. Typical EUCON EASY FILL mix designs are available by contacting The Euclid Chemical Company.

Precautions / Limitations

- Do not allow material to freeze.
- Consult your local Euclid Chemical Representative for the proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- Add to the mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ DS

Set Retarding/Hydration Stabilizing Admixture

EUCLID CHEMICAL

Description

EUCON DS is a liquid admixture specially formulated to retard concrete for extended periods of time. EUCON DS virtually stops the hydration of cement during hot weather or extended pumping operations. EUCON DS can be used as a set retarding admixture to minimize slump loss and when used in combination with other water reducing or set retardation admixtures, control slumps of 8" to 10" (200 - 250 mm) and retain these slumps for 2 hours or more. EUCON DS contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Extended retardation
- Concrete requiring extended slump life
- Pumping concrete

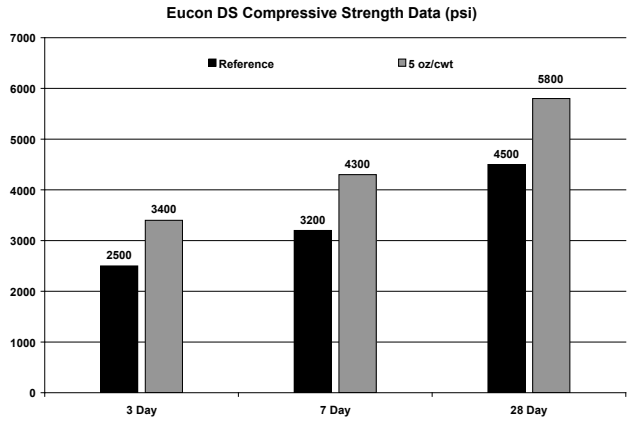
Features/Benefits

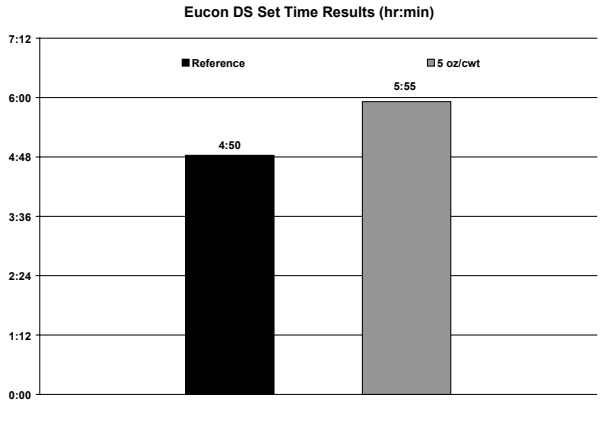
- Wash-out time is decreased due to the rapid cleansing action of the proprietary ingredients in EUCON DS
- Protects the environment
- Reduces clean-up time
- Superior set retardation
- Retains slump life for 2 hours or more

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON DS.





Packaging

EUCON DS is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) and 5 gal (18.9 L) pail.

Shelf Life

2 years in original, unopened container.

Specifications/Compliances

- Meets ASTM C 494 Types B & D

Directions for Use

EUCON DS should be added to the sand and water. It should not come in contact with dry cement or other admixtures until they are mixed in the concrete batch.

Typical dosage rates for EUCON DS are **1 - 16 oz** per 100 lb (65 to 1000 ml per 100 kg) of cementitious material. Higher and lower dosages are acceptable depending on the level of retardation required and the ambient temperature conditions that the concrete is being place. Trial batches are recommended to document performance with local materials.

*Note: The ambient temperature conditions of a concrete mix will have a strong influence on how the Eucon DS performs, in cooler conditions lower dosages are required to have the same affect that is experienced at warmer ambient conditions. Please refer to Euclid Technical Bulletin ECTB 10-1, Set Retarding Admixtures, for further information and guidelines on this topic.

Precautions / Limitations

- Wear protective goggles and gloves when handling EUCON DS.
- Add to mix independent of other admixtures.
- Care should be taken to maintain EUCON DS above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Do not agitate with air.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.19

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EUCON™ STASIS

Cement Hydration Stabilizer/Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON STASIS is a dual purpose liquid chemical admixture specially formulated to retard concrete for extended periods of time and can be used to stabilize the wash-out water in the drum of a ready-mix truck and/or a central batch mixer at the concrete plant.

EUCON STASIS will virtually stop the hydration of cement during hot weather or extended pumping operations.

EUCON STASIS can be used as a water reducing set retarding admixture to minimize slump loss. The EUCON STASIS when used in combination with other water reducing and or water reducing set retardation admixtures can control slumps of 8 to 10" and retain these slumps for 2 hours or more.

EUCON STASIS eliminates the need to discharge waste wash-out water into settling pits that may be creating potential environmental problems. EUCON STASIS prevents normal hydration of the portland cement for up to 96 hours depending upon the dosage rate used. EUCON STASIS is designed to reduce the amount of water needed during the wash-out process of a ready mix truck's drum. The material stabilizes or retards the remaining cement to allow for future use of the wash-out water. EUCON STASIS reduces the amount of water, and also protects the environment . It eliminates the need for wash-out pits. EUCON STASIS contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Stabilize wash out water
- Concrete requiring water reducing and set retardation
- Concrete requiring extended slump life

Features/Benefits

- Eliminates the need to use 200 to 300 gal (757 to 1136 liter) of water to wash-out versus 50 gal (189 L) with EUCON STASIS
- Environmental hazards are reduced because wash-out water is used as batch water for the next load of concrete rather than discharging into settling ponds
- Wash-out time is decreased due to the rapid cleansing action of the proprietary ingredients in EUCON STASIS
- Saves wash-out water
- Protects the environment
- Eliminates wash-out pits
- Reduces clean-up time
- Superior set retardation
- Reduces water requirements
- Retains slump life for 2 hours or more

Packaging

EUCON STASIS is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) and 5 gal (18.9 L) pail.

Shelf Life

2 years in original, unopened container.

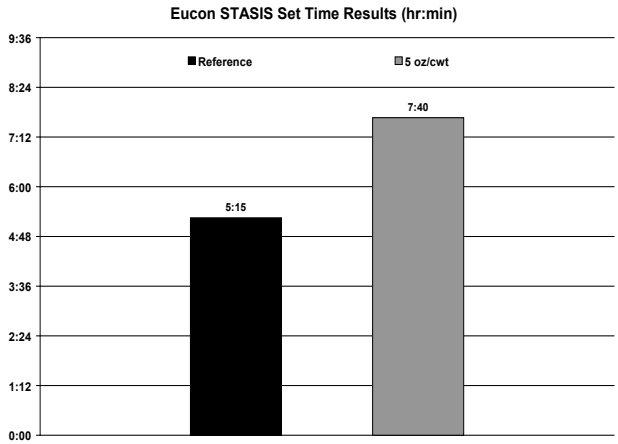
Specifications/Compliances

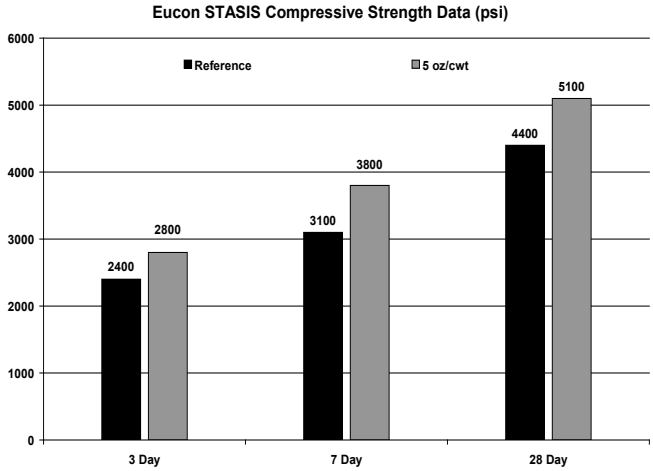
- Meets ASTM C 494 Type B and Type D Admixture

Technical Information

Performance Data:

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content. These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON STASIS.





Typical Engineering Data - Holding Time per 50 gal (190 L) of water:

	Dosage Rate
8 to 12 hours	1 pt (0.5 L)
Overnight	1 qt (0.9 L)
Weekend	2 qt (1.9 L)

Directions for Use

Cement Stabilizer

Discharge all returned or left over concrete. Add *40 to 50 gal (150 to 190 L)* of water to the empty ready mix drum. Rinse fins by reversing the drum to back the water to the rear of the drum. Add the required EUCON STASIS directly to the wash water. Bring the EUCON STASIS wash water to the front of the drum and mix at high speeds for at least 60 seconds. Again, reverse the drum and rinse off the mixer fins. Return the rinse water to the front of the mixer and again mix at high speed for 60 seconds.

Concrete Admixture

EUCON STASIS should be added to the sand or water. Typical dosage rates for EUCON STASIS are *1 to 16 oz per 100 lb (65 to 1040 ml per 100 kg*) of cementitious. It should not come in contact with dry cement or other admixtures until they are mixed in the concrete batch.

Precautions/Limitations

- Wear protective goggles and gloves when handling EUCON STASIS
- Add to mix independent of other admixtures.
- Care should be taken to maintain EUCON STASIS above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Do not agitate with air.
- In all case, consult the Safety Data Sheet before use.

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EUCON™ MSA

Powdered, Densified Microsilica Concrete Admixture

EUCLID CHEMICAL

Description

EUCON MSA is a ready to use powdered microsilica (silica fume) concrete admixture. This product reacts chemically with the calcium hydroxide in the cement paste which yields a calcium silicate hydrate gel that significantly enhances strength and durability. The super fine microsilica fills the voids between cement particles creating a very dense, less permeable concrete. EUCON MSA contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- High strength concrete
- High density concrete
- Bridge decks
- Parking structures
- Marine environments

Features/Benefits

- High ultimate compressive and flexural strength for greater structural capacity
- High early strength gain for faster turnaround time
- Low permeability for greater resistance to water and salt penetration
- Increased abrasion and chemical resistance for a longer life expectancy
- Greatly improved freeze/thaw and scaling resistance
- Improves concrete performance to reduce column size, increase production and lower transportation and erection costs

Technical Information

Typical Engineering Data

Specific gravity 2.2
Bulk density ..... approx. 30 lb/ft^3 (481 kg/m^3)
Microsilica content 100%
Amorphous SiO_2 ..... 92 - 98%

Appearance: EUCON MSA is a very finely textured, free flowing, gray powder.

Packaging

EUCON MSA is packaged in 25 lb (11.3 kg) pulpable bags and can be delivered in bulk tankers for silo storage.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

- EUCON MSA meets the requirements of ASTM C 1240, standard provisions.

Directions for Use

Due to the fineness of the EUCON MSA particles, the admixture needs to be thoroughly mixed and dispensed in and around the cement particles. The proper dispersion is accomplished by adding the microsilica first in the truck mixing process. A typical mix sequence would be:

1. EUCON MSA
2. 75% coarse aggregate, plus sand and 75% water
3. Air entraining admixture (if required)
4. Cement
5. Any Euclid Chemical high range water reducer(*).
6. Coarse aggregate 25% and 25% water

(*) Water demand will be increased when using microsilica. Most mixes will require the use of a high range water reducer to maintain workability, a low water content and a low water/cement ratio.

Dosage: The use of EUCON MSA is normally used at the rate of 5 to 10% by weight of cement. Contact The Euclid Chemical Company for guidance where higher dosages of up to 15% by weight of cement are needed.

Placement: Concrete treated with EUCON MSA may be placed in the same fashion as conventional concrete.

Finishing: Concrete containing EUCON MSA will bleed much less than conventional concrete; at higher dosage rates bleeding will be essentially eliminated. Plastic shrinkage cracks occur due to rapid moisture loss from the surface of the concrete. Because concrete containing EUCON MSA will have a reduced amount of bleed water to replenish what has evaporated, it will be more susceptible to plastic shrinkage cracking.

Also, plastic shrinkage cracking is most likely to occur when low humidity, wind, high air temperature and high concrete temperature are present in any combination. When these conditions do exist, the use of an evaporation retardant such as EUCOBAR should be used. (See page 1 of the EUCOBAR technical data sheet for a table which will show when conditions are favorable for the occurrence of plastic shrinkage cracking.) Note that plastic shrinkage cracking on concrete containing EUCON MSA will occur at lower evaporation rates than for normal concrete.

Methods other than EUCOBAR can be employed to help reduce the possible occurrence of shrinkage cracking. These include erecting windbreaks, fog spray between finishing operations, covering concrete with wet burlap and reducing concrete temperature with ice or cooled aggregates. Placing concrete later in the day to avoid direct sunlight and high temperatures can also be done.

If plastic shrinkage cracks do occur, prompt reworking of the fresh concrete can effectively close them, preferably using magnesium or steel tools. To prevent the reoccurrence of the shrinkage cracks, the concrete should be promptly and thoroughly covered or kept moist.

If a high dosage of EUCON MSA is used in the concrete mix and conditions are favorable for plastic shrinkage cracking, the concrete may become very difficult to finish. In situations such as this, it is recommended to use a one pass finishing procedure of screeding, bullfloating and broom finishing or texturing of the surface followed immediately by curing procedures.

Curing: Proper curing of concrete containing EUCON MSA is absolutely critical in order to achieve the designed high strength and high durability. Proper curing requires the maintenance of proper moisture and proper temperature conditions in the concrete.

All curing of concrete containing EUCON MSA should begin immediately after the finishing procedure is completed. Acceptable curing methods are wet burlap, polyethylene and the use of a high solids liquid membrane forming curing compound such as SUPER REZ-SEAL or SUPER AQUA-CURE VOX.

If a curing compound is not desired, wet cure for a minimum of seven (7) days.

Clean-Up

Clean tools and equipment with water before the material hardens.

Precautions / Limitations

- Test batches/mix designs/sample slabs may be required due to variations in local cement and aggregates.
- Keep concrete from freezing until a minimum strength of 1,000 psi (7 MPa) is reached.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ ABS

Anti-Bleed and Anti-Segregation Admixture

EUCLID CHEMICAL

Description

EUCON ABS is a unique admixture formulated to prevent segregation or excessive bleeding in concrete that does not have an optimum gradation of fine aggregates. Typically, EUCON ABS is used in self-consolidating concrete or where gap-graded aggregates must be used. The Euclid Chemical Company strongly recommends the use of EUCON ABS together with our extensive line of polycarboxylate admixtures. Do not use EUCON ABS with a naphthalene-based admixture. EUCON ABS contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Self-consolidating concrete
- Gap-graded aggregates
- Pumped concrete
- Precast/prestressed
- Ready mix

Features/Benefits

- Reduces excessive bleeding and segregation
- Produces a cohesive mix
- Will not decrease slump
- Facilitates pumping

Technical Information

EUCON ABS is compatible with all Euclid Chemical polycarboxylate based plasticizers. Do not use EUCON ABS with naphthalene based plasticizers like EUCON 37, EUCON 537, EUCON 1037 or EUCON SP.

Technical assistance is available through your local Euclid sales professional.

Packaging

EUCON ABS is available in 275 gal totes (1041 L), 55 gal drums (208 L) and 5 gal pails (18.9 L).

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

- Meets ASTM C 494 Type S

Directions for Use

Use **EUCON ABS** with concrete treated with polycarboxylate-based admixtures. Introduce EUCON ABS after all the admixtures have been added to the mix. EUCON ABS is a very viscous material so it is important to keep it at temperatures above 60°F (16°C) to facilitate dispensing.

For SCC: Use at the rate of 1 to 90 oz/yd^3 (39 to 3510 mL/m^3). Dosage will depend on the mix design characteristics such as w/cm ratio and aggregate grading.

Precautions / Limitations

- It is recommended that **EUCON ABS** be used only with polycarboxylate based plasticizers. Plasticizers that have different chemistries can create unwanted air generation and may affect hardened properties.
- Do not use **EUCON ABS** if product temperature is under 60°F (16°C). It may cause dispenser problems.
- Do not allow to freeze. Once frozen, dispose of product in accordance with your local EPA guidelines.
- Do not use **EUCON ABS** in anti-washout applications.
- In all cases, consult the Safety Data Sheet before use.

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VISCTROL™

Viscosity Modifying Admixture

EUCLID CHEMICAL

Description

VISCTROL is a ready to use liquid admixture designed to modify the viscosity of self consolidating concrete. When VISCTROL is used in conjunction with superplasticizing admixtures, 18" to 28" (460 to 710 mm) diameter spreads are achieved without segregation or lowering compressive strengths. VISCTROL contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Self consolidating concrete

Features/Benefits

- Greatly reduces or eliminates bleeding or segregation
- Evenly disperses aggregates within mix
- Eliminates need for vibration
- Provides superior slump retention
- Eliminates segregation during pumping
- Easily metered with admixture dispensing equipment

Technical Information

Appearance: VISCTROL is a medium viscosity, dark brown liquid which will not discolor concrete.

Packaging

VISCTROL is packaged in 275 gal (1041 L) totes, 55 gal(208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

6 months in original, unopened container

Specifications/Compliances

- Meets ASTM C 494 Type S Admixture

Directions For Use

Batching Sequence: The batching sequence in a SCC system is critical to optimize performance of each admixture introduced. Laboratory data has shown the following order of addition to be effective:

1. Air Entraining Agent (optional)
2. Water Reducers
3. Accelerator or Retarder (optional)
4. VISCTROL
5. HRWR added at the end of the batching sequence

Note: VISCTROL can be added at the end of the batching sequence on a limited basis to correct a slight bleeding or segregation problem.

Dosages of VISCTROL will vary widely depending on w/cm ratio and the gradation of the materials used. Consult your Euclid Chemical representative for appropriate dosing suggestions. Typically, 1 to 12 oz/yd^3 (39 to 470 mL/m^3) should be used to control bleeding and segregation in SCC when polycarboxylate HRWR are used. Variables such as water/cement ratio, sand gradations and mix design play an important role. Trial mixes should be run to optimize dosing requirements. With higher water/cement ratios, lower total fines in SCC mixes, and use of naphthalene based HRWR, dosages of VISCTROL could be as high as 20 oz/yd^3 (775 mL/m^3).

Precautions/Limitations

- Agitate VISCTROL before use.
- Do not allow material to freeze.
- Air entraining agents must be added first, insuring adequate air void system when air is required.
- If slump increase is desired, the HRWR must be added after the addition of VISCTROL to insure an adequate air void system.
- Set retardation may occur with the use of this product when dosages exceed 15 oz/yd^3 (576 mL/m^3).
- In all cases, consult the Safety Data Sheet before use.

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CONEX®

Shrinkage Compensating Admixture

EUCLID CHEMICAL

Description

CONEX is a powdered admixture used for compensation and total overall reduction of net shrinkage for Portland Cement concrete. Its functional mechanism is based on the formation of an expansive component. CONEX is an expansive Type G component, which produces a calcium hydroxide platelet crystal system, as specified in ACI 223. CONEX contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- Bridge decks
- Parking structures
- Interior/Exterior
- Arena/Artificial skating rinks
- Walls/Parapets
- Storage tanks
- Watertight construction
- Toppings
- Piers

Features/Benefits

- The expansion characteristics of CONEX allow for net shrinkage reduction for concrete.
- Use of this admixture does not cause any slump loss and may be used in conjunction with other Euclid Chemical admixtures.
- Will not affect the mechanical strengths.
- It is compatible with the majority of Portland cements.
- CONEX does not affect the air content, set time, or other characteristics of fresh concrete.
- The addition of CONEX should not adversely affect freeze-thaw and salt scaling resistances given that an adequate air void system is provided.
- Expansion process is not through ettringite formation.

Technical Information

Specific Gravity .....3.13 - 3.16
pH.....12.5 - 13

Appearance: CONEX is a free-flowing fine beige powder designed to be mixed with concrete.

Test Methods used to evaluate Conex:

- ASTM C 878
- ASTM C 157 modified in accordance with Technical Bulletin AD-06
- Embedded vibrating strain gauges

For more information please contact your Euclid Technical Sales Representative.

Packaging

CONEX is packaged in 22 lb (10 kg) pulpable bags.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

- Meets ASTM C 494 Type S admixture
- ANSI/NSF STD 61 registered

Directions for Use

- For best results, use CONEX in concrete with the W/C (water to cement ratio) lower than 0.60.
- CONEX should not be added to the concrete mixture after the cementitious ingredients have been introduced and should not be added directly to the ready-mix concrete truck after the concrete is loaded.
- CONEX can be used in drum mixed and central batched concrete applications. The bags of CONEX must be introduced into the mixer up front JUST before loading the materials. This allows the water to properly moisten the bags and to properly break up and disperse the bags through the grinding effect of the coarse aggregates. Cementitious materials should be introduced at least 60 seconds after the CONEX addition.
- Concrete containing CONEX should be mixed a minimum of 10 minutes, at normal mixing speed, after all concrete constituents have been batched to ensure thorough dispersion of all materials.
- Concrete treated with CONEX may be finished and placed in the same fashion as conventional concrete.
- Typical dosage rate of 2-10% bwoc (by weight of cementitious). Before use, test in accordance with ACI 223 to determine the correct dose needed.
- The safety of the operator needs to be considered when the CONEX is handled.
- **In all cases, preliminary testing is recommended to determine appropriate dosage and to ensure that CONEX is dispersed efficiently.**

Precautions/Limitations

- The use of this product requires a minimum 48 hour wet curing period, with maximum performance obtained after a 7 day curing period. For optimal moist curing efficiency, the use of curing blankets is recommended.
- As soon as the moist curing period is finished, it is recommended to use a curing compound as provided by The Euclid Chemical Company.
- Preliminary trials should be done to determine the optimum dosage and to ensure CONEX is well dispersed.
- CONEX is sensitive to humidity, free water, and to CO_2, and should be stored and handled in the same manner as Portland cement. Keep in perfectly sealed, original package and in a dry location.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ SRA FLOOR

Shrinkage Reducing Admixture

EUCLID CHEMICAL

Description

EUCON SRA FLOOR is a ready to use liquid admixture designed to reduce drying shrinkage and the potential for subsequent cracking in concrete and mortar. EUCON SRA FLOOR reduces the surface tension of the meniscus formed at the air-water interface in the pores. This reduces the internal tensile stresses that causes shrinkage of the cement paste. A drying shrinkage reduction of up to 50% can be observed, but usually in the range of 35%-50%. EUCON SRA FLOOR contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Floors
- Foundations
- Silos
- Concrete pipes
- Water tanks
- Interior
- Walls
- Watertight construction
- Artificial skating rinks
- Water purification plants
- Swimming pools
- Underground construction

Features/Benefits

- Typically, shrinkage may be reduced up to 50% at one year and beyond, depending on the cement used.
- Reduces cracking caused by drying shrinkage.
- Increases the life of the structure.
- Decreases expensive maintenance costs and increases the durability of the structure.

Technical Information

Physical/Chemical Properties

Specific gravity 1.002
Odor ..... mild odor
Color ..... brown
Flash point ..... 220°F (104°C)

Consult your local Euclid Chemical representative for additional information. Trial batches are highly recommended.

Packaging

EUCON SRA FLOOR is available in bulk, 275 gal (1041 L) totes, and 55 gal (208 L) drums.

Shelf Life

2 years in original, unopened container.

Specifications/Compliances

EUCON SRA FLOOR admixture is currently meeting the requirements of ASTM C494/C494M and AASHTO M-194 as a Type S admixture.

Directions for Use

Add EUCON SRA FLOOR after all admixtures have been introduced into the mix. It is also recommended to allow enough mixing time of all other admixtures before the addition of EUCON SRA FLOOR to ensure concrete homogeneity. To reduce shrinkage, a dosage of 1% to 2% by weight of cementitious should be used. In most cases, the recommended dosage needed to optimize the effect of EUCON SRA FLOOR is 2 %. The mix water of the concrete mix should be adjusted to account for volume of EUCON SRA FLOOR added in order to maintain required water:cement

Precautions/Limitations

- EUCON SRA FLOOR has a flash point of 220°F (104°C). EUCON SRA FLOOR must be handled with care and must not be subjected to excessive heat or in the presence of an open flame or sparks.
- EUCON SRA FLOOR may reduce the compressive strength up to 15% depending on the concrete mix design.
- EUCON SRA FLOOR has a potential for set time increase and delayed bleed. Set time increases can be exagerated by lignin and napthalene based admixtures. The use of polycarboxylate based admixtures will help to minimalize the set time increase of concrete treated with EUCON SRA FLOOR.
- When additional workability is required, it is recommended that you use the Plastol line of admixtures
- Proper curing methods are required when EUCON SRA FLOOR is present in the mix. It is highly recommended that concrete treated with EUCON SRA FLOOR be treated with sheet goods or at a minimum a curing compound meeting the requirements of ASTM C1315.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ SRA-XT

Shrinkage Reducing Admixture

EUCLID CHEMICAL

Description

EUCON SRA-XT is a ready to use liquid admixture designed to reduce drying shrinkage and the potential for subsequent cracking in concrete and mortar for air entrained concrete. It has been specially formulated to maintain a stable volume of air as well as a reliable air void system. EUCON SRA-XT reduces the surface tension of the meniscus formed at the air-water interface in the pores. This reduces the internal tensile stresses that cause shrinkage of the cement paste. Drying shrinkage can be reduced up to 50% when using EUCON SRA-XT, but a range of 35% - 50% is usually observed. EUCON SRA-XT contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Floors
- Foundations
- Silos
- Concrete pipes
- Interior/Exterior concrete
- Walls
- Watertight construction
- Artificial skating rinks
- Water purification plants
- Swimming pools
- Underground construction
- Water tanks

Features/Benefits

- Can be used in air entrained concrete
- Drying shrinkage may be reduced up to 50% at one year and beyond, depending on mix constituents.
- Reduces cracking caused by drying shrinkage.
- Increases the life of the structure.
- Decreases expensive maintenance costs and increases the durability of the structure.

Technical Information

These results were obtained under laboratory conditions with materials meeting the specifications of the stated ASTM method. Changes in the materials, mix design, mixing methods, temperature, and site conditions can affect the dosage response of EUCON SRA-XT. Trial mixes should be run in order to confirm design dosage response and concrete physical requirements are met.

Eucon SRA-XT Chemical Properties:

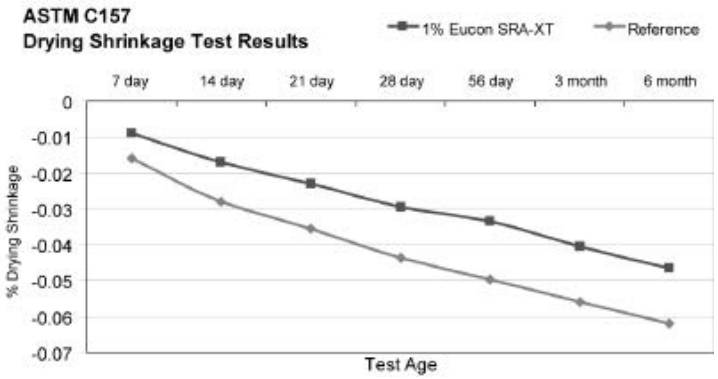
Specific gravity.....1.002
Flash point ..... 220°F (104°C)

Color..... brown
Odor..... mild odor

Physical Testing Properties:

Relative Durability Factor (ASTM C666): 92%

Salt Scaling (ASTM C672): Achieved equal salt scaling resistance compared with the reference concrete mix.



Cement content - 517 lbs/yd^3 (307 kg/m^3)
W/C = 0.50
Air Content = 7.4%
Slump = 5 1/4" (130 mm)

Packaging

EUCON SRA-XT is available in bulk, 275 gal (1041 L) totes, and 55 gal (208 L) drums.

Shelf Life

2 years in original, unopened container.

Specifications/Compliances

EUCON SRA-XT admixture is currently meeting the requirements of ASTM C494/C494M and AASHTO M-194 as a Type S admixture.

Directions for Use

For use in air entrained applications, especially those exposed to severe freezing and thawing environments and deicing salts, a maximum EUCON SRA-XT dosage of 1% by weight of cementitious is recommended. When used for non-air entrained concrete, such as interior applications, it is acceptable to use at a dosage of up to 2% by weight of cementitous materials.

When an air entraining agent is used, it should be introduced within the first 50% of water and aggregate addition (before the introduction of the cement). This will allow the air void system to develop before the addition of other chemical admixtures, such as superplasticizers, and EUCON SRA-XT.

Add EUCON SRA-XT after all admixtures have been introduced into the mix. It is also recommended to allow enough mixing time of all other admixtures before the addition of EUCON SRA-XT to ensure concrete homogeneity. The design water of the concrete mix should be adjusted to account for volume of EUCON SRA-XT added in order to maintain required water:cement

EUCON SRA-XT is compatible with all cementitious materials that meet current ASTM C150 standards and all air entrainers, retarders, accelerators and water reducers provided by The Euclid Chemical Company. **THE AIR ENTRAINING DOSAGE MUST BE DETERMINED THROUGH PERFORMANCE TESTING FOR EACH INDIVIDUAL MIX DESIGN AND SET OF CONCRETE MATERIALS.**

*Note: Whenever switching from a mix containing EUCON SRA-XT to one that does not contain EUCON SRA-XT, it is strongly recommended to rinse out each truck to provide consistent air content between batches.

Precautions/Limitations

- EUCON SRA-XT has a flash point of 220°F (104°C). EUCON SRA-XT must be handled with care and must not be subjected to excessive heat or be placed in the presence of an open flame or sparks.
- EUCON SRA-XT may reduce compressive strength up to 10% depending on the concrete mix design.
- EUCON SRA-XT has a potential for set time increase and delayed bleed. Set time increases can be exagerated by lignin and naphthalene based admixtures. The use of polycarboxylate based admixtures will help to minimalize the set time increase of concrete treated with EUCON SRA-XT.
- When additional workability is required, it is recommended that you use the Plastol line of admixtures
- Proper curing methods are required when EUCON SRA-XT is present in the mix. It is highly recommended that concrete treated with EUCON SRA-XT be treated with sheet goods or at a minimum a curing compound meeting the requirements of ASTM C1315.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ VANDEX™ AM-10

Integral Crystalline Waterproofing Admixture

EUCLID CHEMICAL

Description

EUCON VANDEX AM-10 is an integral crystalline admixture specifically formulated to interact with concrete capillary pore structures to provide a waterproofing system that is a permanent part of the concrete matrix. EUCON VANDEX AM-10 can be used in above-and below-grade applications. EUCON VANDEX AM-10 contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Waste Treatment Facilities
- Foundations & Basements
- Tunnels & Subways
- Dams & water reservoirs
- Manholes
- Underground Vaults
- Parking Structures
- Water Containment Structures
- Swimming Pools

Features/Benefits

- Reduce or Eliminate water penetration
- Easy to use powdered material
- Negligible affect on working time
- Interior or exterior waterproofing
- Improves chemical resistance
- Can seal hairline cracks up to 0.5 mm

Technical Information

These results were obtained under laboratory conditions with materials meeting the specifications of the stated ASTM/DIN/CRD method. Changes in the materials, mix design, mixing methods, temperature, and site conditions can affect the dosage response of EUCON VANDEX AM-10. Trial mixes should be run in order to confirm design dosage response and concrete physical requirements are met.

Test Type	Method	Test Parameters	Performance Relative to Control
Water Penetration	*DIN 1048*	*72 psi Head Pressure*	*40% Reduction*
Water Permeability	*CRD C48-92*	*200 psi Head Pressure*	*>70% Reduction*
Capillary Absorption	*ASTM C-1585*		*>40% Reduction*
Resistance to Chloride Penetration	*ASTM C1202*		*10% Improvement*

Packaging

EUCON VANDEX AM-10 is packaged in 22 lb (9.98 kg) pulpable bags.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

- ANSI/NSF STD 61
- ASTM C 494 Type S

Dosage

EUCON VANDEX AM-10 is typically dosed at 1 - 2% by weight of cementitous material for most applications. Please consult your local Euclid Chemical representative for further dosage recommendations

Directions for Use

EUCON VANDEX AM-10 can be used in drum mixed and central batched concrete applications. It should be added to the initial batching sequence preferably as the aggregate is being added to the mixing vessel. Concrete should be mixed a minimum of 10 minutes, at normal mixing speed, after all concrete constituents have been batched to ensure thorough dispersion of all materials. EUCON VANDEX AM-10 should not be added to the concrete mixture after the cementitious ingredients have been introduced.

Precautions/Limitations

- EUCON VANDEX AM-10 should be added to the aggregate as it being batched or to the initial batching sequence.
- Do not add EUCON VANDEX AM-10 at the end of the batching sequence. Adding EUCON VANDEX AM-10 to the end of the batching sequence may result in extended setting characteristics or premature stiffening of the concrete.
- EUCON VANDEX AM-10 may require a slight increase in air entrainment dosage.
- In all cases, consult the Safety Data Sheet before use.
- Preliminary testing is encouraged to ensure concrete performance of all project concrete ingredients.
- Setting times may be extended depending on cement chemistry. Trial mixes should be performed to confirm concrete performance.

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EUCON™ BARACADE WPT

Integral Water Repellent With Weatherproofing Technology

EUCLID CHEMICAL

Description

EUCON BARACADE WPT is a high performance liquid water repellent admixture used to improve the durability and surface integrity of concrete exposed to harsh weather conditions. By resisting moisture and chloride ion penetration, concrete produced with EUCON BARACADE WPT reduces the potential for scaling, spalling, and other moisture-related degradation. The visual appeal of decorative concrete can also be improved by using EUCON BARACADE WPT to decrease the potential for secondary efflorescence. Unlike topically applied sealers, EUCON BARACADE WPT produces a chemically bonded and insoluble protection mechanism throughout the concrete mix. When concrete is produced with EUCON BARACADE WPT, capillary pores become resistant to water penetration making it less susceptible to freeze-thaw and deicing salt related damage as long as the concrete is properly air entrained. EUCON BARACADE WPT contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Driveways, Sidewalks, and Patios
- Integrally colored decorative concrete
- Architectural precast concrete
- Other exterior concrete exposed to freeze-thaw cycles and deicing salts

Features/Benefits

- Reduces the intrusion of water and deicing chemicals into the concrete
- Increases resistance to weathering
- Reduces absorption rate and capillary wicking
- Improves color retention of integrally colored concrete
- Significantly reduces the potential for efflorescence

Technical Information

Appearance	-	White, free-flowing liquid
Specific Gravity	-	0.96
Freezing Point	-	32°F (0°C)

Packaging

EUCON BARACADE WPT is available in 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9) L) pails

Shelf Life

1 year in original, unopened container.

Performance Characteristics

EUCON BARACADE WPT has undergone extensive testing to examine its overal performance in concrete. These tests include:

- ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- ASTM C67 Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile (Efforescence)
- ASTM C192 Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
- ASTM C231 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
- ASTM C403 Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
- ASTM C457 Standard Test Method for Microscopical Determination of Parameters of the Air Void System in Hardened Concrete
- ASTM C642 Standard Test Method for Density, Absorption, and Voids in Hardened Concrete
- ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
- ASTM C672 Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals
- ASTM C1585 Standard Test Method for Measurment of Rate of Absorption of Water by Hydraulic-Cement Concretes

Directions for Use

DOSAGE RATE: EUCON BARACADE WPT is recommended for use at a rate of 1 to 6oz per 100 lb (65 to 392 mL/100kg) of total cementitious materials used in the mix. This range is dependent on the application, mix design, and targeted performance. For most applications, 3oz per 100 lb (196 mL/100kg) of total cementitious materials is recommended.

EUCON BARACADE WPT should be added after all materials are batched and mixed to the targeted slump range, then mixed for an additional 5 minutes.

EUCON BARACADE WPT may affect water demand and/or air content with a given set of materials. These properties and required mix adjustments should be determined through trial mixing.

EUCON BARACADE WPT is compatible with most Euclid Chemical admixtures as long as they are added separately to the concrete mix.

CURING: Proper curing of the concrete as-placed is essential. Any curing compounds used should be applied as early as possible after finishing.

MIX DESIGN CONSIDERATIONS: Minimum compressive strength at 28 days of 4,500 psi (31MPa); maximum water-cement ratio of 0.45

Precautions/Limitations

- EUCON BARACADE WPT requires storage between 40°F (4°C) and 105°F (40°C); protect from extreme heat/direct sun and freezing temperatures.
- EUCON BARACADE WPT is intended for use with proper materials and mix designs that meet applicable building codes, standards, and ACI guidelines.
- EUCON BARACADE WPT has the potential to reduce compressive strengths. This reduction in strength may increase as the dosage of EUCON BARACADE WPT increases.
- Trial mixes with EUCON BARACADE WPT are recommended to determine dose response and the combined effect of other products used in the mix.
- EUCON BARACADE WPT is specifically intended for exterior applications and preferably broomed, flatwork finishes.

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PLASTOL™ AMP-X²

Workability Enhancing Admixture

EUCLID CHEMICAL

Description

PLASTOL AMP-X² workability enhancing admixture is formulated using advanced time-release polycarboxylate technology and has been engineered for use in various concrete applications to provide extended workability of conventional, high slump, or Self-Consolidating Concrete with minimal retardation. Plastol AMP-X² workability enhancing admixture works in partnership with a normal, mid-range, or high-range water reducer, to aid in maintaining a consistent slump or flow over a significantly increased time period. The addition of Plastol AMP-X² minimizes the need for job site slump adjustments or re-tempering while maintaining consistent air contents from batching to placing of concrete. Plastol AMP-X² enables the concrete producer to have the flexibility to make adjustments for variations in regional raw materials, specific application requirements, and environmental conditions. Plastol AMP-X² contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

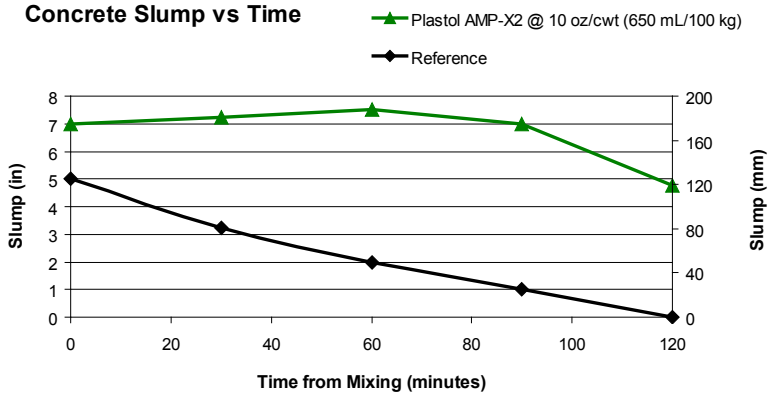
- Ready-Mix Concrete
- Precast/Pre-Stressed Concrete
- High Slump Concrete
- Self-Consolidating Concrete (SCC)
- Mining and Tunneling Concrete
- Flatwork and Mass Concrete

Features/Benefits

- Provides extended slump retention without retardation
- Consistent control of air content
- Higher early and ultimate strengths
- Reduces or eliminates job-site addition of HRWR
- Lowers number of rejected concrete loads
- Aids in concrete placement and reduces labor cost

Technical Information

The following test results were achieved using a typical slab on ground mix design with 600 lbs/yd³ (360 kg/m³) of Type I cement and a water to cementitious materials ratio of 0.5. These results were obtained under laboratory conditions with materials meeting the specifications of ASTM C494. Changes in materials and mix designs can affect the dosage response of Plastol AMP-X².



Reference Mix utilized a Type A Water Reducer Dosage of 4 oz/cwt (260 mL/100 kg cement)

Packaging

Plastol AMP-X² is available in bulk, 275 gal (1041L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

Plastol AMP-X² has been formulated to meet ASTM C494/C494M Type S Standards.

Directions for Use

Plastol AMP-X² can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions at full mixing speed. However, better results have been observed batching directly on the freshly batched concrete. It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch.

Plastol AMP-X² is typically used at dosages of 2 to 12 oz per 100 lbs (130 to 780 mL per 100 kg) of cementitious material. Other dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of Plastol AMP-X² will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be run to verify plastic and hardened performance with local materials.

Plastol AMP-X² is compatible with most admixtures including air-entraining agents, accelerators, most water-reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately. It is NOT recommended that Plastol AMP-X² be used with Eucon 37,Eucon 1037, Eucon SP, Plastol 100, or any other naphthalene or melamine-based admixtures.

Please contact a Euclid Chemical Sales Professional for any additional questions.

Precautions / Limitations

- Care should be taken to maintain Plastol AMP-X² above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- Keep concrete from freezing until a minimum strength of 1000 psi (7 MPa) is reached.
- In all cases, consult the Safety Data Sheet before use.

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PLASTOL™ AMP-X³

Extended Workability Admixture

EUCLID CHEMICAL

Description

Plastol AMP-X³ extended workability admixture is formulated using advanced time-release polycarboxylate technology and has been engineered for use in various concrete applications to provide extended workability of conventional, high slump, or Self-Consolidating Concrete with minimal retardation. Plastol AMP-X³ workability enhancing admixture works in partnership with a normal, mid-range, or high-range water reducer, to aid in maintaining a consistent slump or flow over a significantly increased time period. The addition of Plastol AMP-X³ minimizes the need for job site slump adjustments or re-tempering while maintaining consistent air contents from batching to placing of concrete. Plastol AMP-X³ enables the concrete producer to have the flexibility to make adjustments for variations in regional raw materials, specific application requirements, and environmental conditions. Plastol AMP-X³ contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

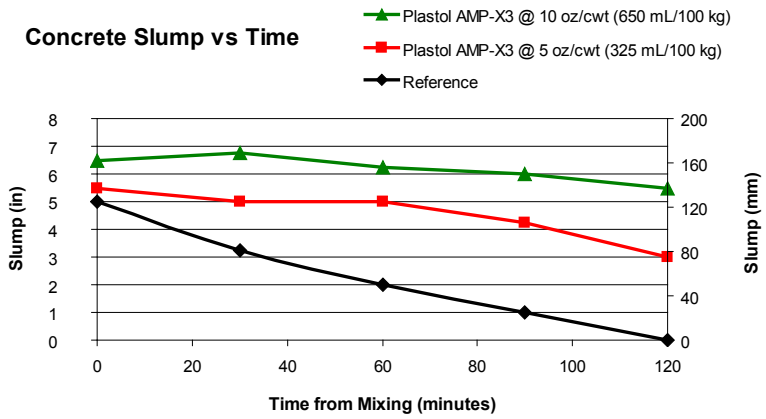
- Ready-Mix Concrete
- Precast/Pre-Stressed Concrete
- High Slump Concrete
- Self-Consolidating Concrete (SCC)
- Mining and Tunneling Concrete
- Flatwork and Mass Concrete

Features/Benefits

- Provides extended slump retention without retardation
- Consistent control of air content
- Higher early and ultimate strengths
- Reduces or eliminates job-site addition of HRWR
- Lowers number of rejected concrete loads
- Aids in concrete placement and reduces labor cost

Technical Information

The following test results were achieved using a typical slab on ground mix design with 600 lbs/yd³ (360 kg/m³) of Type I cement and a water to cementitious materials ratio of 0.5. These results were obtained under laboratory conditions with materials meeting the specifications of ASTM C494. Changes in materials and mix designs can affect the dosage response of Plastol AMP-X³.



Reference Mix utilized a Type A Water Reducer Dosage of 4 oz/cwt (260 mL/100 kg cement)

Packaging

Plastol AMP-X^3 is available in bulk, 275 gal (1041L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

Plastol AMP-X^3 has been formulated to meet ASTM C494/C494M Type S Standards.

Directions for Use

Plastol AMP-X^3 can be added to the initial batch water or directly on the freshly batched concrete and mixed for approximately 5 minutes or 70 revolutions at full mixing speed. However, better results have been observed batching directly on the freshly batched concrete. It should not come into contact with dry cement or other admixtures until mixed thoroughly with the concrete batch.

Plastol AMP-X^3 is typically used at dosages of 2 to 12 oz per 100 lbs (130 to 780 mL per 100 kg) of cementitious material. Other dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

For any concrete application including Self-Consolidating Concrete (SCC), the dosage of Plastol AMP-X^3 will vary depending on the mix design, local materials, and individual needs of the concrete producer. Trial mixes should be run to verify plastic and hardened performance with local materials.

Plastol AMP-X^3 is compatible with most admixtures including air-entraining agents, accelerators, most water reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately. It is NOT recommended that Plastol AMP-X^3 be used with Eucon 37,Eucon 1037, Eucon SP, Plastol 100, or any other naphthalene or melamine-based admixtures.

Please contact a Euclid Chemical Sales Professional for any additional questions.

Precautions / Limitations

- Care should be taken to maintain Plastol AMP-X^3 above freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated. Never agitate with air or an air lance.
- Keep concrete from freezing until a minimum strength of 1000 psi (7 MPa) is reached.
- In all cases, consult the Safety Data Sheet before use.

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INTEGRAL COLORS

INCRETE SYSTEMS
DECORATIVE CONCRETE BY EUCLID CHEMICAL

EUCLID CHEMICAL

COLOR-CRETE™

Admixture for Color Conditioned Concrete

Description

COLOR-CRETE is a concentrated color admixture, available in powder, granular, or liquid form. COLOR-CRETE is designed to be used in all cementitious materials, producing a wide variety of color effects.

Primary Applications

- Base color for stamped concrete
- Manufactured concrete pavers
- Cast stone and roof tiles
- Cast-in-place slabs on grade
- Tilt-up panels, pre-cast concrete
- Stucco, plaster

Technical Information

COLOR-CRETE is composed of high-grade materials, including specific synthetic iron-oxide pigments chosen for intense, uniform color while exceeding ASTM C 979 specifications for integrally colored concrete.

COLOR-CRETE powder is produced in 35 standard colors. Custom colors, in all three forms, are also available upon request.

Packaging

COLOR-CRETE is available in several forms from batch-ready powder to liquid. Batch-ready pulpable bags and COLOR-CRETE LIQUID are pre-packaged to contain an exact measurement of pigment that can be added directly to ready-mix drums.

Batch-ready bags are available in premeasured amounts convenient for 5 or 6 sack mixes.

Increte will custom package all powder colors in batch-ready bags in increments of 1 lb (0.45 kg), 5 lb (2.26 kg), or 25 lb (11.34 kg).

COLOR-CRETE LIQUID and COLOR CRETE GRANULAR pigments are dispensed on-site or at ready-mix plants using the COLOR-MATIC dispensing systems.

Shelf Life

COLOR-CRETE Powder and Granular: Unlimited, in original, unopened container.

COLOR-CRETE LIQUID: 6-12 months in original, unopened container.

Specifications/Compliances

Meets or exceeds ASTM C 979 requirements.

Directions for Use

Consult the Best Practices and Procedures Guide for Integrally Colored Concrete.

MIX DESIGN

Use a minimum cement content of 470 lb/yd^3 (280 kg/m^3), which is a 5-bag mix. Design for the lowest slump that can be placed and finished, but no greater than 5 in (12.7 cm). Type II cement is preferred, and cementitious substitutes, such as fly ash or slag, are not recommended for color consistency. Do not use calcium-chloride admixtures. A test patch at the job site is recommended using at least a 3 yd^3 (2.29 m^3) mix. Use the same mix design, raw materials, placement, and finishing techniques that will be used on the actual job.

BATCHING AND MIXING

Cement substitutes, such as fly ash or slag, should not be used. Contact your local Euclid Chemical representative for suggestions. With the mixer running add the color and mix for 1-2 minutes before adding the balance of materials. Once the balance of materials has been added, mix the drum at mixing speed for five minutes. Never add COLOR-CRETE to an empty drum/mixer. For consistent batches, use the same mix design and slump from truck to truck. (If higher slumps are required a water-reducing admixture may be used.) Track the slump between batches, because different water-to-cement ratios can affect the final color. It is important to use the same cement because different cements may be different shades of gray, thereby affecting the final color of the concrete.

FORMING & PLACING CONCRETE FOR VERTICAL SURFACES

Seal joints in forms for vertical surfaces. Water leakage at joints causes changes in water-to-cement ratio and discoloration near the leak.

Precautions/Limitations

- Concrete placed in the sun sets at a different rate than concrete in the shade. This may cause differences in color. If possible, time the pour to avoid having sunlit and shaded areas.
- Do not add water to the surface during finishing operations. Added water may create a blotchy surface.
- High slumps may result in non-uniform color.
- Do not use calcium-chloride admixtures.
- For professional use only.
- In all cases, consult the Safety Data Sheet before use.

Rev. 02.19

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INCRETE SYSTEMS
DECORATIVE CONCRETE BY EUCLID CHEMICAL

EUCLID CHEMICAL

COLOR-CRETE™ 7/28

PRE-PACKAGED POWDER INTEGRAL COLOR FOR CONCRETE

DESCRIPTION

COLOR-CRETE 7/28 is a concentrated color admixture available in 7 standard pigments that can that can produce 28 different shades by varying the number of bags per cubic yard (cubic meter) of concrete.

PRIMARY APPLICATIONS

- Base color for stamped concrete
- Manufactured concrete pavers
- Cast-in-place, tilt-up, pre-cast concrete
- Stucco, plaste

TECHNICAL INFORMATION

COLOR-CRETE 7/28 is composed of high-grade materials, including specific synthetic iron-oxide pigments chosen for intense, uniform color while exceeding ASTM C 979 specifications for integrally-colored concrete.

PACKAGING

COLOR-CRETE 7/28 is packaged in 6 lb (2.72 kg) bags. The inner, water-soluble bag contains a precise dose of pigment and can be added directly to ready-mix drums.

SHELF LIFE

Unlimited in original, unopened container.

SPECIFICATIONS/COMPLIANCES

Meets or exceeds ASTM C 979 requirements

Directions for Use

Consult the Best Practices and Procedures Guide for Integrally-Colored Concrete.

MIX DESIGN

Use a minimum cement content of 470 lb/yd^3 (280 kg/m^3), which is a 5-bag mix. Design for the lowest slump that can be placed and finished, but no greater than 5 in (12.7 cm). Type II cement is preferred, and cementitious substitutes, such as fly ash or slag, are not recommended for color consistency. Do not use calcium-chloride admixtures. A test patch at the job site is recommended using at least a 3 yd^3 (2.29 m^3) mix. Use the same mix design, raw materials, placement, and finishing techniques that will be used on the actual job.

DOSAGE: Please refer to Color–Crete 7/28 Color Chart (728-013 or CC-728)

Light	1 bag/2 yd^3 (1.52 m^3)
Medium	1 bag/1 yd^3 (0.76 m^3)
Dark	2 bags/1 yd^3 (0.76 m^3)
Heavy	4 bags/1 yd^3 (0.76 m^3)

BATCHING AND MIXING

Cement substitutes, such as fly ash or slag, are not recommended for integrally-colored concrete. Contact your local Euclid Chemical representative for suggestions.

For plant batching, add the head water to an empty drum, followed by the color and the aggregate. Mix for 5 minute or 75 revolutions. Add admixtures, fibers and cementitious materials. Continue mixing for 75 revolutions minimum.

For job site batching, add the pigment to the center of the mixer, being careful not to hit the mixing fins and dry drum. Mix for 75 revolutions. Do not add water.

Never add COLOR-CRETE 7/28 directly to an empty drum/mixer. For consistent batches, use the same mix design and slump from truck to truck. (If higher slumps are required, a water-reducing admixture may be used. Track the slump between batches, because different water-to-cement ratios can affect the final color. It is important to use the same cement, because different cements may be different shades of gray, thereby affecting the final color of the concrete.

FORMING & PLACING CONCRETE FOR VERTICAL SURFACES

Seal joints in forms for vertical surfaces. Water leakage at joints causes changes in water to cement ratio and discoloration near the leak.

Precautions/Limitations

- Use with adequate ventilation. Keep away from all sources of ignition. If solvent odor is objectionable, use a water-based, low-odor product.
- Material will not freeze in storage but should be allowed to rise to 50 °F (10 °C) or more before use.
- Do not apply when concrete surfaces or ambient temperatures are below 40 °F (4 °C), or if rain is expected within 12 hours after application. Application in hot, direct sunlight or when concrete or air temperatures are >95 °F (35 °C) can cause bubbling.
- Excessive build-up of CLEAR SEAL or allowing product to puddle during application can lead to bubbling and discoloration.
- Do not thin.
- Do not apply over curing compounds. Complete removal is necessary before applying CLEAR SEAL.
- Not resistant to gasoline or other automotive fluids.
- For professional use only.
- In all cases, consult the Safety Data Sheet before use.

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INCRETE SYSTEMS
DECORATIVE CONCRETE BY EUCLID CHEMICAL

EUCLID CHEMICAL

COLOR-CRETE™ GRANULAR

Integral Colorant for Concrete

Description

COLOR-CRETE GRANULAR is composed of iron-oxide pigments that are treated to form a granular, flowable, dry concrete colorant. COLOR-CRETE GRANULAR is a low-dusting alternative to standard dry concrete colorants, without the limitations of liquid colorants. COLOR-CRETE GRANULAR comes in 4 basic colors: Light red, medium red, yellow and black. With these basic colorants, an array of color effects are possible.

Primary Applications

For use with granular-color-dispensing systems, specifically COLOR MATIC G. COLOR-CRETE GRANULAR is used to color a wide variety of cementitious products.

Features/Benefits

- Flows easily
- Will not fade
- Dust-free
- Consistent color every time
- Freeze-resistant
- Highly-concentrated
- Meets ASTM C 979 for integrally-colored concrete pigments

Technical Information

COLOR-CRETE GRANULAR pigments are composed of the highest grade of materials available. The iron oxides are specifically chosen for intense tinting and uniform color while exceeding ASTM C 979 specifications for integrally-colored concrete. All pigments are light fast, lime proof and totally weather proof, providing permanent colorfast structures.

Specifications/Compliances

COLOR-CRETE GRANULAR meets ASTM C-979 specifications for integrally-colored concrete.

Shelf Life

4+ Years in original, unopened shipping container.

Packaging

Granular pigments are packaged in tote sacks. Contact Increte for exact weights.

Directions for Use

For use with granular dispensing systems or other similar dispensing equipment.

19215 Redwood Road • Cleveland, OH 44110
800-321-7628 t • 216-531-9596 f

Precautions/Limitations

- For professional use only
- In all cases, consult the Safety Data Sheet before use.

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INCRETE SYSTEMS
DECORATIVE CONCRETE BY EUCLID CHEMICAL

EUCLID CHEMICAL

COLOR-CRETE™ LIQUID

INTEGRAL COLORANT FOR CONCRETE

DESCRIPTION

COLOR-CRETE LIQUID pigments are specially-blended, inorganic pigments dispersed in water and are designed for use with COLORMATIC integral-color-dispensing machines. COLOR-CRETE LIQUID is available in five basic colors: Light Red (red 110), Medium-Shade Red (red 130), Yellow (yellow 920), Black (black 330), and White (titanium dioxide). With these basic colorants a wide array of color effects are possible for integrally-colored concrete.

PRIMARY APPLICATIONS

- Cementitious materials
- Cast-in-place concrete
- Pre-cast, tilt-up
- Slabs on grade
- Pavers
- Roof tiles
- Stucco, plaster
- Cast stone

FEATURES/BENEFITS

- Light fast/will not fade
- Dust-free
- Consistent color every time

TECHNICAL INFORMATION

COLOR-CRETE LIQUID pigments are composed of high-grade iron oxides specifically chosen for vibrant tinting and uniform color while exceeding ASTM C 979 specifications for integrally-colored concrete.

Red 110 and 130 Slurries

Pigment Loading:	65-69%
Weight:	17.6-18.0 lb/gal (2.10-2.15 kg/L)

Yellow 920 Slurry

Pigment Loading:	55-60%
Weight:	14.4-14.8 lb/gal (1.72-1.77 kg/L)

Black 330 Slurry

Pigment Loading:	55-60%
Weight:	14.6-15.0 lb/gal (1.74-1.79 kg/L)

White Titanium Dioxide Slurry

Pigment Loading:	55-60%
Weight:	14.1-14.5 lb/gal (1.69-1.73 kg/L)

Packaging

Standard package sizes include:

Black 330	3800 lb (1723 kg) totes	500 lb (226 kg) drums
Yellow 920	3500 lb (1587 kg) totes	500 lb (226 kg) drums
Reds	4000 lb (1814 kg) totes	500 lb (226 kg) drums
White	3400 lb (1542 kg) totes	500 lb (226 kg) drums

Shelf Life

6 Months in original shipping container. After long periods of storage, product should be mixed prior to use.

Specifications/Compliances

COLOR-CRETE LIQUID PIGMENTs are manufactured to the highest standards and exceed the requirements of ASTM C-979 specifications for integrally colored concrete.

Directions for Use

For use with COLORMATIC dispensing systems, or other similar dispensing equipment.

Clean-Up

Clean tools, equipment, and drips with hot, soapy water. Dried product will return to powdered state and can be easily flaked off and swept up.

Precautions/Limitations

- Protect from freezing.
- For professional use only
- In all cases, consult the Safety Data Sheet before use.

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POWDERED ADMIXTURES

ACCELGUARD® SET-SPEED

Powdered, Non-chloride, Accelerating Admixture

EUCLID CHEMICAL

Description

ACCELGUARD SET-SPEED is a powdered accelerator intended for use with cementitious based materials. ACCELGUARD SET-SPEED improves the properties of plastic and hardened concrete, with significant improvements in early strength gain and setting characteristics, improved workability and decreased bleeding and segregation. ACCELGUARD SET-SPEED works well at all temperatures but has shown benefits in the 35°F to 50°F (2°C to 10°C). ACCELGUARD SET-SPEED contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Cold weather conditions
- Underground construction
- Precast and post tensioned concrete
- Ready Mix concrete
- Cementitous materials

Features/Benefits

- Reduces initial set 1 to 4 hours depending on concrete temperatures
- Improves workability and provides denser concrete
- Minimizes bleeding and segregation
- Improves compressive strength development at early ages
- Can be site added for unanticipated conditions
- Convenient packaging for hassle-free addition

Technical Information

ACCELGUARD SET-SPEED is packaged and formulated to achieve a wide range of performance with various types of cementious mixtures under various ambient conditions. Under 'normal' conditions at 50°F (10°C) using Type I cement and 517 lb/yd^3 (306 kg/m^3)concrete mixture, 1 bag of ACCELGUARD SET-SPEED per yard of concrete will typically accelerate the intial setting of concrete by approximately 1 hour.

Shelf Life

1 year in original, unopened container.

Packaging

ACCELGUARD SET-SPEED is packaged in 5 gal. pails containing (15) 2 lb (0.9 kg) dissolvable inner bags.

Specifications/Compliances

- Not Applicable

19215 Redwood Road • Cleveland, OH 44110
800-321-7628 t • 216-531-9596 f

Directions for Use

1 bag of **ACCELGUARD SET-SPEED** is typically used per cubic yard of concrete or 517 lbs (306 kg)of cementitious material to acheive approximately 1 hour of acceleration. Performance will vary depending on materials, ambient conditions and additional admxitures contained in the mix. Dosage can be increased to deliver faster setting or to offset slower setting in lower ambient temperatures. Each 2 lb (0.9 kg) package is double bagged. Remove the outer bag and add the entire inner-soluble ACCELGUARD SET-SPEED bag and contents to the plastic/wet concrete. The entire inner bag will easily dissolve. Thoroughly mix at high speed for a minimum of 5 minutes.

ACCELGUARD SET-SPEED is compatible with most admixtures including air-entraining agents, accelerators, most water-reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions/Limitations

- Keep concrete from freezing until a minimum of 1000 psi (7 MPa) is achieved.
- Keep unused bags in sealed container until ready to use.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ DURA-PLUS

Powdered Air Entraining Agent

EUCLID CHEMICAL

Description

EUCON DURA-PLUS is a powdered air entraining admixture for concrete. EUCON DURA-PLUS will improve the freeze/thaw durability of concrete and is compatible with cementitious materials containing other admixtures. EUCON DURA-PLUS contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Structural concrete
- Mass concrete construction
- Exterior concrete
- Underground construction
- Architectural concrete
- Paving concrete

Features/Benefits

- Provides a stable air void system with proper bubble size and spacing. This air void system protects concrete against damage caused by repeated freeze/thaw cycles
- Improved resistance to de-icing salts and sulfate attack
- Less mixing water can be used per yard (meter) of concrete and placeability is improved
- Decreases bleeding and segregation

Packaging

EUCON DURA-PLUS is packaged in 3.5 gal pails containing (25) - 0.5 lb (0.2 kg) plastic bags.

Shelf Life

1 years in original, unopened package.

Directions for Use

EUCON DURA-PLUS is typically dosed at a rate of 1 bag per 9 cubic yards of concrete at 517 lb of cementitious material The amount of EUCON DURA-PLUS required to achieve 5-6% air content is also dependant on the type of cement, fineness of sand, temperature, design of the mix, other admixtures, etc. Concrete mixes must be tested regularly to confirm that proper air content is achieved.

Each 0.5 lb (0.2 kg) package is single bagged. Open the bag and add the entire contents to the plastic/wet concrete.

EUCON DURA-PLUS is compatible with most admixtures including air-entraining agents, accelerators, most water-reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions/Limitations

- Consult your local Euclid Chemical representative for the proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ FLOW-MAX

Powdered, High Range Water Reducer

EUCLID CHEMICAL

Description

EUCON FLOW-MAX is a powdered high range water reducing admixture for use with concrete and other cementious based materials. It may be added to the concrete at the job site or at the batching facility. EUCON FLOW-MAX is formulated to maintain plastic consistancy after dosing depending on the initial slumps, ambient conditions and dosage rates. EUCON FLOW-MAX contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- High performance concrete
- General ready mix concrete
- Heavily reinforced concrete
- Shotcrete
- Flatwork and mass concrete
- Minimum water content concrete
- Low water/cement ratio concrete
- High slump, flowable concrete
- Underground construction

Features/Benefits

- Helps maintain specified water content and low water/cement ratio concrete allowing higher strengths
- Maintains concrete workability
- Can be added to batch during unforseen complications
- Aids in concrete placement and reduces labor cost

Technical Information

EUCON FLOW-MAX is packaged and formulated to achieve a wide range of performance with various types of cementious mixtures under various ambient conditions. EUCON FLOW-MAX is not intended for use in specification based concrete mixtures. Under 'normal' conditions using Type I cement and 517 lb/yd^3 (306 kg/m^3) concrete mixture, 1 bag or 2 lbs (0.9 kg) of EUCON FLOW-MAX per yard of concrete will typically increase slump by 5-7 in (130 - 180 mm).

Packaging

EUCON FLOW-MAX is packaged in 5 gal. pails containing 30 lbs (13.6 kg) of EUCON FLOW-MAX or (10) - 2 lb (0.9 kg) inner dissolvable bags.

Shelf Life

1 year in original, unopened package.

Specifications/Compliances

- Fully complies with the requirements of ASTM C 494, Type F admixtures.

Directions for Use

Each 2 lb (0.9 kg) package is double bagged. Remove the outer bag and add the entire inner-soluble EUCON FLOW-MAX bag and contents to the plastic/wet concrete. The entire inner bag will easily dissolve. Thoroughly mix at high speed for a minimum of 5 minutes.

EUCON FLOW-MAX is typically used at dosages of 1 bag or 2 lbs (0.9 kg) for each 1yd^3 of concrete to achieve an additional 5-7 inches of slump depending on concrete age, water:cement, ambient conditions and other materials.

For any concrete application, including Self-Consolidating Concrete (SCC), the slump increase will vary depending on the mix design, local materials, and ambient conditions. Trial mixes should be run to verify performance with local materials.

EUCON FLOW-MAX is compatible with most admixtures including air-entraining agents, accelerators, most water-reducers, retarders, shrinkage reducers, corrosion inhibitors, viscosity modifiers, and microsilica; however, each material should be added to the concrete separately.

Precautions / Limitations

- Care should be taken to maintain EUCON FLOW-MAX above freezing.
- Keep conatiners of EUCON FLOW-MAX closed when not in use
- Keep concrete from freezing until a minimum strength of 1000 psi (7 MPa) is reached.
- Do not use EUCON FLOW-MAX in concrete containing polycarboxylate materials
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ RE-DUCE

Powdered, Water Reducing, Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON RE-DUCE is a powdered, water-reducing and set retarding admixture for concrete and cementitious materials. EUCON RE-DUCE will help achieve improved setting and finishing characteristics, as well as increased compressive strengths. EUCON RE-DUCE contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Flatwork concrete
- General ready mix concrete
- Underground construction
- Mass concrete
- Bridge decks
- Hot weather concrete

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Reduces segregation
- Compatible with air entraining agents

Hardened Concrete

- Increases strength at all ages
- Reduces permeability
- Reduces cracking
- Increases durability
- Non staining

Technical Information

EUCON RE-DUCE is packaged and formulated to achieve a wide range of performance with various types of cementious mixtures under various ambient conditions. EUCON RE-DUCE is not intended for use in specification based concrete mixtures. Under 'normal' conditions using Type I cement and 517 lb/yd^3 (306 kg/m^3) concrete mixture, 1 bag of EUCON RE-DUCE per cubic yard of concrete will typically increase slump by 1-3 in (25 - 80 mm) or 1 bag of EUCON RE-DUCE per cubic meter of concrete will typically increase the slump by 15 - 50 mm.

Packaging

EUCON RE-DUCE is packaged in 5 gal. pails containing (20) - 1 lb (0.45 kg) inner dissolvable bags.

Shelf Life

1 year in original, unopened container.

Directions for Use

The typical dosage rate for EUCON RE-DUCE is 1 bag per cubic yard of concrete or 517 lbs of cementitious material. Dosage can be increased for additional workability. Each 1 lb (0.45 kg) package is double bagged. Remove the outer bag and add the entire inner-soluble EUCON RE-DUCE bag and contents to the plastic/wet concrete. The entire inner bag will easily dissolve. Thoroughly mix at high speed for a minimum of 5 minutes. Also, slower setting can occur with additional dosage of EUCON RE-DUCE .

Precautions/Limitations

- Care should be taken to maintain EUCON RE-DUCE above freezing, However, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Never agitate with air.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ SET-STOP

Cement Stabilizer Packets

EUCLID CHEMICAL

Description

EUCON SET-STOP is a powdered chemical admixture specially formulated to stabilize cementitious mixes for extended periods of time and is packaged in dissolvable bags for convenient dispensing to grout, concrete and shotcrete mixes. EUCON SET-STOP can be used in combination with other admixtures to maintain slump and workability. EUCON SET-STOP restricts normal hydration of portland cement for extended periods of time. EUCON SET-STOP contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Grouting Applications
- Shotcreting operations in mines and tunnels
- Concrete haulage applications
- Emergency cement stabilization
- Ready mixed concrete
- Precast concrete
- Underground construction

Features/Benefits

- Buckets can easily be kept on mobile equipment
- Material will not freeze like liquid admixtures
- Can be re-dosed as needed
- Consistant dosage response

Technical Information

Performance Data:

The following testing was obtain under field conditions:

1.33 yd^3 ($1m^3$) 'Neat' Grout mixture

Type III Portland Cement

0.50 Water:Cement

Ambient temperature - 77°F (25°C)

Mixture temperature - 86°F (30°C)

Eucon Set Stop Content	Initial Set (hr:min)
None	1:35
1 Packette	3:05
2 Packettes	3:55
3 Packettes	4:45

Packaging

EUCON SET-STOP is packaged in 3.5 gal. pails containing (30) - 0.5 lb (0.2 kg) inner dissolvable bags

Shelf Life

1 years in original, unopened container.

Specifications/Compliances

Meets ASTM C 494 Type D Admixture

Directions for Use

Each 0.5 lb (0.2 kg) package is double bagged. Remove the outer bag and add the entire inner-soluble EUCON SET-STOP bag and contents to the plastic/wet concrete. The entire inner bag will easily dissolve. Thoroughly mix at high speed for a minimum of 3 minutes. Extended addition: Add dissolvable packs to the mix at any time during transport/holding and mix at high speed for approximately 3 minutes. Note that a higher dosage of Eucon Set Stop may be required for an extended addition depending on amount of time since initial dosing and/or initial batching time.

Dosage

Eucon Set Stop must be evaluated with each mix and application to accurately determine the proper dosage. When first using Eucon Set Stop with a particular mix, set times and mix temperatures should be closely monitored to determine proper dosage for that mix. Overdosing Eucon Set Stop will not harm the mix but can extend set time for several days.

Precautions/Limitations

- Wear protective goggles and gloves when handling EUCON Set Stop
- Only add to mixture after cement and water are thruroughly mixed
- In all cases, consult the Material Safety Data Sheet before use
- Test mixes should be performed to determine dosage rates for particular materials and conditions

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EUCON™ V-MOD

Powdered Anti-Bleed and Anti-Segregation Admixture

EUCLID CHEMICAL

Description

EUCON V-MOD is a unique powdered admixture formulated to prevent segregation or excessive bleeding in concrete that does not have an optimum gradation of fine aggregates. Typically, EUCON V-MOD is used in self-consolidating concrete or where gap-graded aggregates must be used. EUCON V-MOD is also useful in grouting applications to reduce segregation and bleed. Do not use EUCON V-MOD with a naphthalene-based admixtures. EUCON V-MOD contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Self-consolidating concrete
- Gap-graded aggregates
- Pumped concrete
- Precast/prestressed
- Ready mix
- Annulus grouting
- Hi-Flow grouts
- Underground construction
- Tunneling applications
- Pervious Concrete

Features/Benefits

- Reduces or eliminates excessive bleeding and segregation
- Produces a cohesive mix
- Will not decrease workability
- Increases pumpability with harsh mixtures

Technical Information

EUCON V-MOD is compatible with all Euclid Chemical polycarboxylate based plasticizers. Some preliminary testing is recommended to confirm plastic properties.

Technical assistance is available through your local Euclid sales professional.

Packaging

EUCON V-MOD is packaged in 5 gal. pails containing (20) 1 lb (0.45 kg) inner dissolvable bags.

Shelf Life

1 year in original, unopened container.

Directions for Use

Use **EUCON V-MOD** with concrete treated with polycarboxylate-based admixtures. Introduce EUCON V-MOD after all the admixtures have been added to the mix. Each 1 lb (0.45 kg) package is double bagged. Remove the outer bag and add the entire inner-soluble EUCON V-MOD bag and contents to the plastic/wet concrete. The entire inner bag will easily dissolve. Thoroughly mix at high speed for a minimum of 5 minutes.

For SCC: Use at the rate of 1 bag per yd^3. Dosage may vary depending on the mix design characteristics such as w/cm ratio and aggregate grading.

Precautions / Limitations

- It is recommended that **EUCON V-MOD** be used only with polycarboxylate based plasticizers. Plasticizers that have different chemistries can create unwanted air generation and may affect hardened properties.
- Do not use **EUCON V-MOD** in anti-washout applications.
- In all cases, consult the Safety Data Sheet before use.

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CONCRETE FIBER PRODUCTS

TUF-STRAND™ SF

Macro Synthetic Fiber

EUCLID CHEMICAL

Description

TUF-STRAND SF is a patented polypropylene / polyethylene macro synthetic fiber successfully used to replace steel fibers, welded wire mesh and conventional reinforcing bars in a wide variety of applications. TUF-STRAND SF fibers comply with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and are specifically designed to provide equivalent tensile and bending resistance to conventional reinforcement requirements. Concrete reinforced with TUF-STRAND SF will have three-dimensional reinforcing with enhanced flexural toughness, impact and abrasion resistance and will also help mitigate the formation of plastic shrinkage cracking in concrete. Dosage rates will vary depending upon the reinforcing requirements and can range from 3.0 lbs/yd^3 (1.8 kg/m^3) to 20 lbs/yd (12 kg/m^3). TUF-STRAND SF synthetic macro-fibers comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC383 for synthetic fibers, are UL certified for composite metal deck construction and are recognized within ACI 360 and SDI/ANSI-C1.0 as an alternative reinforcement.

Primary Applications

- Slab on Grade and elevated construction (distribution centers, warehouses, etc.)
- Thin walled pre-cast (septic tanks, vaults, walls, etc.)
- Shotcrete for tunnel linings, pool construction and slope stabilization
- Pavements and white-toppings
- Residential Walls

Features/Benefits

- Equivalent strengths to WWM and rebar provided by engineering calculations
- Controls and mitigates plastic shrinkage cracking and reduces segregation and bleed-water
- Provides three-dimensional reinforcement against micro and macro-cracking
- Reduces equipment wear, fiber rebound and increases build-up thickness compared to steel fibers for shotcrete applications
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement
- Tested in accordance with ASTM C 1399, C 1550, C 1609
- Applicable for design by ACI 360 R-10
- Certified for use by UL/ULC for D900 and F900 Series metal deck assemblies as alternate to WWF (CBXQ.R13773)

Technical Information

Typical Engineering Data

Material	polypropylene/polyethylene blend
Specific Gravity	0.92
Typical dosage rates	3 to 20 lbs/yd^3 (1.8 to 12 kg/m^3)
Available lengths	2” (51 mm)
Aspect Ratio	74
Tensile Strength	87-94 ksi (600 to 650 MPa)
Modulus of Elasticity (EN 14889.2)	1380 ksi (9.5 GPa)
Melt Point	320°F (160°C)
Electrical and Thermal Conductivity	low
Water Absorption	negligible
Acid and Alkali Resistance	excellent
Color	white

Packaging

TUF-STRAND SF fibers are packaged in 3.0 lb (1.36 kg), 4.0 lb (1.81 kg) and 5.0 lb (2.27 kg) water soluble bags.

Shelf Life

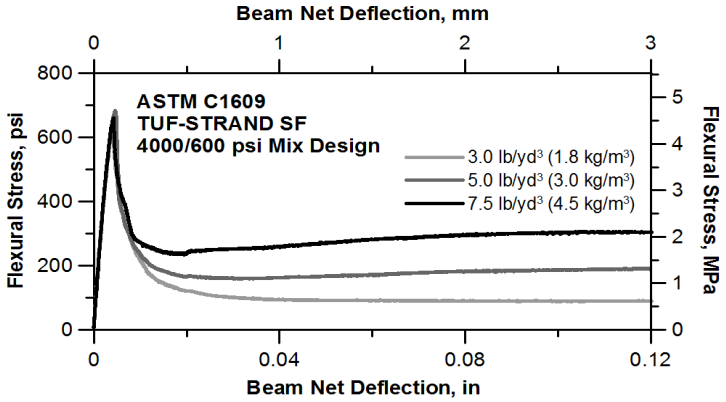
3 years in original, unopened package.

Directions for Use

TUF-STRAND SF fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. Fibers must be mixed with concrete for a minimum of three (3) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. When adding 3 to 5 lbs/yd³ (1.8 to 3 kg/m³), a slump loss of up to 2" (50 mm) can be expected for a typical ready-mix concrete design. For dosages of 6 to 12 lbs/yd³ (4 to 7 kg/m³), a slump loss of 3 to 5 in (75 to 125 mm) can be expected. The use of water reducers and/or superplasticizers, such as Eucon 1037, the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

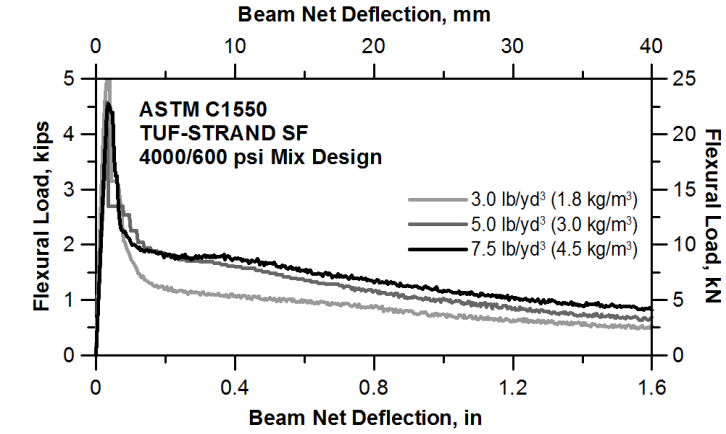
Add other admixtures independently from fiber addition. TUF-STRAND SF is compatible with all Euclid Chemical admixtures. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Fiber-reinforced concrete (FRC) is characterized by standard test methods such as ASTM C1399, C1609, and C1550 or RILEM TC162 (EN14651). The flexural residual strength of FRC is measured using these beam tests and is used for design purposes with proper conversion factors. Typical test results for ASTM C1609 (FRC beam) and C1550 (FRC round panel) are shown for TUF-STRAND SF macro synthetic fiber tested at different dosage rates. These test results could vary with mix design and curing conditions.



Dosage	f_{e3}	R_{e3}
lb/yd³ (kg/m³)	psi (MPa)	%
3.0 (1.8)	128 (0.9)	22±3
5.0 (3.0)	203 (1.4)	30±2
7.5 (4.5)	288 (2.0)	44±4

(Typical Data)



Dosage	Energy (J) at Deflection (mm)				
lb/yd³ (kg/m³)	5	10	20	30	40
3.0 (1.8)	43	67	109	144	171
5.0 (3.0)	48	83	138	178	208
7.5 (4.5)	58	107	190	254	302

(Typical Data)

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a "zero-slump" concrete. Ensure a minimum concrete slump of 3" (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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TUF-STRAND™ MAXTEN

Macro Synthetic Fiber

EUCLID CHEMICAL

Description

TUF-STRAND MAXTEN is a macro synthetic fiber successfully used as an alternate to steel fibers and welded wire mesh in a wide variety of secondary reinforcement applications. TUF-STRAND MaxTen fibers comply with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and are specifically used for the reduction of plastic shrinkage cracks, to improve impact, shatter and abrasion resistance, to increase fatigue resistance, to increase toughness of concrete and provide long term durability of concrete and cement based building products. Dosage rates will vary depending upon the reinforcing requirements and can range typically from 3.0 to 5.0 lbs/yd^3 (1.8 to 3.0 kg/m^3). TUF-STRAND MaxTen synthetic macro-fibers comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC32 for synthetic fibers and can save time and money on construction projects by eliminating the purchase, storage, handling, cutting, placing and waste of welded wire mesh. These fibers are chemically inert and will not corrode.

Primary Applications

- Industrial and residential floors
- Whitetoppings, bridge decks and pavements
- Thin walled pre-cast (septic tanks, vaults, walls, etc.)
- Mass concrete

Features/Benefits

- Increases impact, shatter and abrasion resistance of concrete
- Reduces segregation, plastic settlement, and shrinkage cracking of concrete
- Provides three-dimensional reinforcement against micro and macro-cracking
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement
- Tested in accordance with ASTM C 1399 and C 1609

Technical Information

Typical Engineering Data

Material	polypropylene/polyethylene blend
Specific Gravity	0.91
Typical Dosage Rates	3 to 5 lbs/yd^3 (1.8 to 3.0 kg/m^3)
Available Lengths	¾" (19 mm), 1 ½" (38 mm)
Aspect Ratio	39 / 79
Tensile Strength	87-94 ksi (600 to 650 MPa)
Melt Point	320°F (160°C)
Electrical and Thermal Conductivity	low
Water Absorption	negligible
Acid and Alkali Resistance	excellent
Color	gray

Packaging

TUF-STRAND MaxTen fibers are packaged in 3.0 lb (1.36 kg), 4.0 lb (1.81 kg) and 5.0 lb (2.27 kg) water soluble bags.

Shelf Life

3 years in original, unopened package.

Directions for Use

TUF-STRAND MaxTen fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. Fibers must be mixed with concrete for a minimum of three (3) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. When adding 3 to 5 lbs/yd^3 (1.8 to 3 kg/m^3), a slump loss of up to 2" (50 mm) can be expected for a typical ready-mix concrete design. For higher dosages, increased loss in slump can be expected depending upon the mixture design. The use of water reducers and/or superplasticizers, such as the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. TUF-STRAND MaxTen fibers are compatible with all Euclid Chemical admixtures. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a "zero-slump" concrete. Ensure a minimum concrete slump of 3" (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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TUF-STRAND™ PX54

Macro Synthetic Fiber

EUCLID CHEMICAL

Description

TUF-STRAND PX54 is a macro synthetic fiber engineered for use as an alternate to steel fibers and welded wire mesh for precast concrete and shotcrete reinforcement applications. TUF-STRAND PX54 fibers comply with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and are specifically used to improve impact, shatter and abrasion resistance, to increase fatigue resistance, to increase toughness of concrete and provide long term durability of concrete and cement based building products. Dosage rates will vary depending upon the reinforcing requirements and can range typically from 3.0 to 15 lb/yd^3 (1.8 to 9 kg/m^3). TUF-STRAND PX54 synthetic macro-fibers comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC32 for synthetic fibers and can save time and money on construction projects by eliminating the purchase, storage, handling, cutting, placing and waste of welded wire mesh. These fibers are chemically inert and will not corrode.

Primary Applications

- Precast Concrete (septic tanks, vaults, walls, etc.)
- Shotcrete for tunnel linings, pool construction and slope stabilization
- Wall Systems
- Mass Concrete

Features/Benefits

- Equivalent strengths to WWM and rebar provided by engineering calculations
- Provides three-dimensional reinforcement against micro and macro-cracking
- Reduces equipment wear, fiber rebound and increases build-up thickness compared to steel fibers for shotcrete applications
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement
- Tested in accordance with ASTM C 1550, C 1609
- Applicable for design by ACI 360 R-10

Technical Information

Typical Engineering Data

Material	100% virgin polyolefin
Specific Gravity	0.91
Typical dosage rates	3 to 15 lbs/yd^3 (1.8 to 9 kg/m^3)
Available lengths	2 1/8" (54 mm)
Aspect Ratio	79
Tensile Strength	78 ksi (538 GPa)
Modulus of Elasticity	1200 ksi (8.27 GPa)
Melt Point	320°F (160°C)
Electrical and Thermal Conductivity	low
Water Absorption	negligible
Acid and Alkali Resistance	excellent
Color	white

Packaging

TUF-STRAND PX54 fibers are packaged in 5.0 lb (2.27 kg) water soluble bags.

Shelf Life

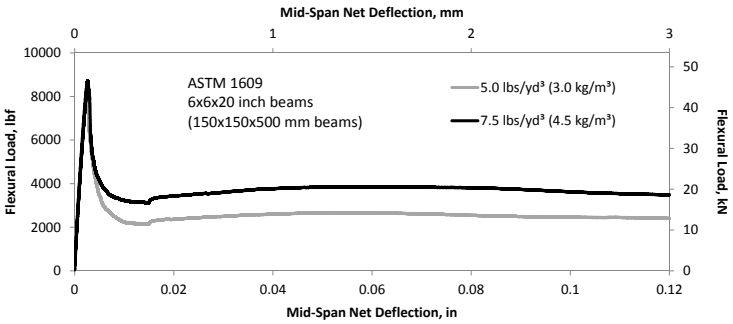
3 years in original, unopened package.

Directions for Use

TUF-STRAND PX54 fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. Fibers must be mixed with concrete for a minimum of three (3) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. When adding 3 to 5 lbs/yd³ (1.8 to 3 kg/m³), a slump loss of up to 2" (50 mm) can be expected for a typical ready-mix concrete design. For dosages of 6 to 12 lbs/yd³ (4 to 7 kg/m³), a slump loss of 3 to 5 in (75 to 125 mm) can be expected. The use of water reducers and/or superplasticizers, such as Eucon 1037, the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

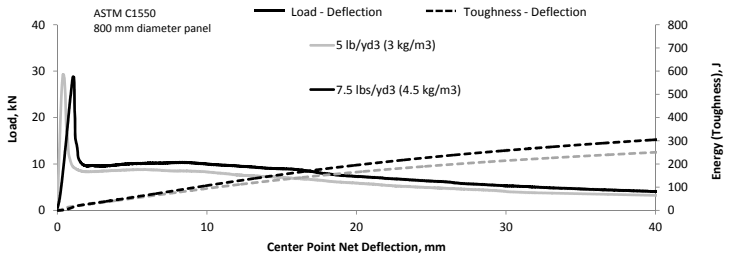
Add other admixtures independently from fiber addition. TUF-STRAND PX54 is compatible with all Euclid Chemical admixtures. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Fiber-reinforced concrete (FRC) is characterized by standard test methods such as ASTM C1609, and C1550 or RILEM TC162 (EN14651). The flexural residual strength of FRC is measured using these beam tests and is used for design purposes with proper conversion factors. Typical test results for ASTM C1609 (FRC beam) is shown for TUF-STRAND PX54 macro synthetic fiber tested at different dosage rates. These test results could vary with mix design and curing conditions.



Dosage	f_{e3}	R_{e3}
lb/yd³ (kg/m³)	psi (MPa)	%
5.0 (3.0)	219 (1.5)	31 ± 3
7.5 (4.5)	311 (2.1)	43 ± 5

(Typical Data)



Dosage	Energy (J) at Deflection (mm)				
lb/yd³ (kg/m³)	5	10	20	30	40
5.0 (3.0)	49	90	158	206	214
7.5 (4.5)	53	102	187	247	293

(Typical Data)

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a "zero-slump" concrete. Ensure a minimum concrete slump of 3" (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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TUF-STRAND™ SUPERMIX 31

Macro/Micro Synthetic Fiber Blend

EUCLID CHEMICAL

Description

TUF-STRAND SUPERMIX 31 is a macro/micro synthetic fiber blend successfully used as an alternative to steel fibers and welded wire mesh in a wide variety of secondary reinforcement applications. TUF-STRAND SuperMix 31 fibers comply with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and are specifically used for the reduction of plastic shrinkage cracks, to improve impact, shatter and abrasion resistance, to increase fatigue resistance, to increase toughness of concrete and provide long term durability of concrete and cement based building products. This product has a blend of 3 lbs/yd^3 (1.8 kg/m^3) of macro synthetic fiber and 1 lbs/yd^3 (0.6 kg/m^3) of micro synthetic fiber. TUF-STRAND SuperMix 31 synthetic micro/macro fibers can save time and money on construction projects by eliminating the purchase, storage, handling, cutting, placing, and waste of welded wire mesh. These fibers are chemically inert and will not corrode.

Primary Applications

- Bridge decks and overlays
- Pavements
- White-toppings
- Pre-cast

Features/Benefits

- Reduces segregation, plastic settlement, and shrinkage cracking of concrete
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost vs wire mesh for temperature/shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Property	Macro Fiber	Micro Fiber
Material	polypropylene/polyethylene blend	100% virgin monofilament polypropylene
Type	Non-fibrillated macro fiber	Monofilament micro fiber
Length	1 ½ in (38 mm)	¾ in (19 mm)
Specific Gravity	0.91	0.91
Tensile Strength	87-94 ksi (600-650 MPa)	N/A*
Aspect Ratio	55	N/A*
Acid/Alkali Resistance	Excellent	Excellent

* Tensile strength and aspect ratio are not applicable for micro fibers based on ASTM D-7508.

Packaging

TUF-STRAND SuperMix 31 fibers are packaged in 4.0 lb (1.8 kg) water soluble bags.

Shelf Life

3 years in original, unopened package.

Specifications/Compliances

TUF-STRAND SuperMix 31 fibers comply with the following specifications:

- Caltrans: Complies with Caltrans Bridge Deck Specification in Section 90 *Concrete* and section 51 *Concrete Structures*
- NDOT: Complies with NDOT Bridge Deck Specification in Section 501 *Portland Cement Concrete*

Directions for Use

TUF-STRAND SuperMix 31 fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. Fibers must be mixed with concrete for a minimum of three (3) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. When adding 4 lbs/yd^3 (2.4 kg/m^3), a slump loss of up to 2" (50 mm) can be expected for a typical ready-mix concrete design. For higher dosages, increased loss in slump can be expected depending upon the mixture design. The use of water reducers and/or superplasticizers, such as the Eucon series or Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. TUF-STRAND SuperMix 31 fibers are compatible with all Euclid Chemical admixtures. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a "zero-slump" concrete. Ensure a minimum concrete slump of 3" (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use

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TUF-STRAND™ SUPERMIX 41

Macro/Micro Synthetic Fiber Blend

EUCLID CHEMICAL

Description

TUF-STRAND SUPERMIX 41 is a macro/micro synthetic fiber blend successfully used as an alternative to steel fibers and welded wire mesh in a wide variety of secondary reinforcement applications. TUF-STRAND SuperMix 41 fibers comply with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and are specifically used for the reduction of plastic shrinkage cracks, to improve impact, shatter and abrasion resistance, to increase fatigue resistance, to increase toughness of concrete and provide long term durability of concrete and cement based building products. This product has a blend of 4 lbs/yd^3 (2.4 kg/m^3) of macro synthetic fiber and 1 lbs/yd^3 (0.6 kg/m^3) of micro synthetic fiber. TUF-STRAND SuperMix 41 synthetic micro/macro fibers can save time and money on construction projects by eliminating the purchase, storage, handling, cutting, placing, and waste of welded wire mesh. These fibers are chemically inert and will not corrode.

Primary Applications

- Vegetation Control
- Pavements
- White-toppings
- Pre-cast

Features/Benefits

- Reduces segregation, plastic settlement, and shrinkage cracking of concrete
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost vs wire mesh for temperature/shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Property	Macro Fiber	Micro Fiber
Material	polypropylene/polyethylene blend	100% virgin monofilament polypropylene
Type	Non-fibrillated macro fiber	Monofilament micro fiber
Length	1 ½ in (38 mm)	¾ in (19 mm)
Specific Gravity	0.91	0.91
Tensile Strength	87-94 ksi (600-650 MPa)	N/A*
Aspect Ratio	55	N/A*
Acid/Alkali Resistance	Excellent	Excellent

* Tensile strength and aspect ratio are not applicable for micro fibers based on ASTM D-7508.

Packaging

TUF-STRAND SuperMix 41 fibers are packaged in 5.0 lb (2.3 kg) water soluble bags.

Shelf Life

3 years in original, unopened package.

Specifications/Compliances

TUF-STRAND SuperMix 41 fibers comply with the following specifications:

- Caltrans: Vegetation Control Specification Section 83 * Minor Concrete *

Directions for Use

TUF-STRAND SuperMix 41 fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. Fibers must be mixed with concrete for a minimum of three (3) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. When adding 5 lbs/yd^3 (3.0 kg/m^3), a slump loss of up to 2.5" (65 mm) can be expected for a typical ready-mix concrete design. For higher dosages, increased loss in slump can be expected depending upon the mixture design. The use of water reducers and/or superplasticizers, such as the Eucon series or Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. TUF-STRAND SuperMix 41 fibers are compatible with all Euclid Chemical admixtures. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a "zero-slump" concrete. Ensure a minimum concrete slump of 3" (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use

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TUF-STRAND™ SUPERMIX 42F

Macro/Micro Synthetic Fiber Blend

EUCLID CHEMICAL

Description

TUF-STRAND SUPERMIX 42F is a macro/micro synthetic fiber blend successfully used as an alternative to steel fibers and welded wire mesh in a wide variety of secondary reinforcement applications. TUF-STRAND SuperMix 42F fibers comply with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and are specifically used for the reduction of plastic shrinkage cracks, to improve impact, shatter and abrasion resistance, to increase fatigue resistance, to increase toughness of concrete and provide long term durability of concrete and cement based building products. This product has a blend of 4 lbs/yd^3 (2.4 kg/m^3) of macro synthetic fiber and 2 lbs/yd^3 (1.2 kg/m^3) of micro synthetic fiber. TUF-STRAND SuperMix 42F synthetic micro/macro fibers can save time and money on construction projects by eliminating the purchase, storage, handling, cutting, placing, and waste of welded wire mesh. These fibers are chemically inert and will not corrode.

Primary Applications

- Bridgedecks and overlays
- Pavements
- White-toppings
- Pre-cast

Features/Benefits

- Reduces segregation, plastic settlement, and shrinkage cracking of concrete
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost vs wire mesh for temperature/shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Property	Macro Fiber	Micro Fiber
Material	polypropylene/polyethylene blend	100% virgin monofilament polypropylene
Type	Non-fibrillated macro fiber	Fibrillated micro fiber
Length	2 in (50 mm)	¾ in (19 mm)
Specific Gravity	0.91	0.91
Tensile Strength	87-94 ksi (600-650 MPa)	N/A*
Aspect Ratio	74	N/A*
Acid/Alkali Resistance	Excellent	Excellent

* Tensile strength and aspect ratio are not applicable for micro fibers based on ASTM D-7508.

Packaging

TUF-STRAND SuperMix 42F fibers are packaged in 6.0 lb (2.8 kg) water soluble bags.

Shelf Life

3 years in original, unopened package.

Specifications/Compliances

TUF-STRAND SuperMix 42F fibers comply with the following specifications:

- UDOT: Complies with UDOT Concrete Specification Section 03055M and *Portland Cement Concrete*

Directions for Use

TUF-STRAND SuperMix 42F fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. Fibers must be mixed with concrete for a minimum of three (3) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. When adding 6 lbs/yd^3 (3.6 kg/m^3), a slump loss of up to 3" (80 mm) can be expected for a typical ready-mix concrete design. For higher dosages, increased loss in slump can be expected depending upon the mixture design. The use of water reducers and/or superplasticizers, such as the Eucon series or Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. TUF-STRAND SuperMix 42F fibers are compatible with all Euclid Chemical admixtures. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a "zero-slump" concrete. Ensure a minimum concrete slump of 3" (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use

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TUF-STRAND™ SUPERMIX SP

Macro Synthetic Fiber

EUCLID CHEMICAL

Description

TUF-STRAND SUPERMIX SP is a patented polypropylene / polyethylene macro synthetic fiber blend successfully used to replace steel fibers, welded wire mesh and conventional reinforcing bars in a wide variety of applications. TUF-STRAND SuperMix SP fibers comply with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and are specifically designed to provide equivalent tensile and bending resistance to conventional reinforcement requirements. Concrete reinforced with TUF-STRAND SuperMix SP will have three-dimensional reinforcing with enhanced flexural toughness, impact and abrasion resistance and will also help mitigate the formation of plastic shrinkage cracking in concrete. Dosage rates will vary depending upon the reinforcing requirements and can range from 3.0 lbs/yd^3 (1.8 kg/m^3) to 10 lbs/yd (6 kg/m^3). TUF-STRAND SuperMix SP synthetic macro-fibers comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC383 for synthetic fibers, are recognized within ACI 360 and SDI/ANSI-C1.0 as an alternative reinforcement.

Primary Applications

- Pavements and white-toppings
- Slab on Grade and elevated construction (distribution centers, warehouses, etc.)
- Thin walled pre-cast (septic tanks, vaults, walls, etc.)

Features/Benefits

- Controls and mitigates plastic shrinkage cracking and reduces segregation and bleed-water
- Increases overall durability, fatigue resistance and flexural toughness
- Equivalent strengths to WWM and rebar provided by engineering calculations
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement
- Provides three-dimensional reinforcement against micro and macro-cracking
- Tested in accordance C 1609

Technical Information

Typical Engineering Data

Material	polypropylene/polyethylene blend
Specific Gravity	0.92
Typical dosage rates	3 to 10 lbs/yd^3 (1.8 to 6 kg/m^3)
Available lengths	2” (51 mm)
Aspect Ratio	80
Tensile Strength	80-90 ksi (550 to 620 MPa)
Modulus of Elasticity (EN 14889.2)	1380 ksi (9.5 GPa)
Melt Point	320°F (160°C)
Electrical and Thermal Conductivity	low
Water Absorption	negligible
Acid and Alkali Resistance	excellent

Packaging

TUF-STRAND SuperMix SP fibers are packaged in 4.0 lb (1.81 kg) water soluble bags.

Shelf Life

3 years in original, unopened package.

Directions for Use

TUF-STRAND SuperMix SP fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. Fibers must be mixed with concrete for a minimum of three (3) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. When adding 3 to 5 lbs/yd^3 (1.8 to 3 kg/m^3), a slump loss of up to 2" (50 mm) can be expected for a typical ready-mix concrete design. For dosages of 6 to 10 lbs/yd^3 (4 to 6 kg/m^3), a slump loss of 3 to 5 in (75 to 125 mm) can be expected. The use of water reducers and/or superplasticizers, such as Eucon 1037, the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. TUF-STRAND SuperMix SP is compatible with all Euclid Chemical admixtures. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Fiber-reinforced concrete (FRC) is characterized by standard test methods such as ASTM C1399, C1609, and C1550 or RILEM TC162 (EN14651). The flexural residual strength of FRC is measured using these beam tests and is used for design purposes with proper conversion factors. Typical test results for ASTM C1609 (FRC beam) and C1550 (FRC round panel) are shown for TUF-STRAND SuperMix SP macro synthetic fiber tested at different dosage rates. These test results could vary with mix design and curing conditions.

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a "zero-slump" concrete. Ensure a minimum concrete slump of 3" (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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PSI™ FIBERSTRAND™ 100

Polypropylene Microfiber

EUCLID CHEMICAL

Description

PSI FIBERSTRAND 100 is a monofilament polypropylene microfiber for concrete reinforcement that complies with ASTM C 1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and is specifically designed to help mitigate the formation of plastic shrinkage cracking in concrete. Typically used at a dosage rate of 1.0 lb / yd^3 (0.6 kg / m^3), PSI FIBERSTRAND 100 microfibers have been shown to greatly reduce plastic shrinkage cracking when compared to plain concrete. PSI FIBERSTRAND 100 microfibers also comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC32 for synthetic fibers.

Primary Applications

- Slabs on grade, sidewalks, driveways, curb work, overlays and toppings
- Footings, foundations, walls and tank applications
- Stucco applications, pre-cast concrete and pre-stressed beams
- Shotcrete, slope paving and composite steel deck construction

Features/Benefits

- Controls and mitigates plastic shrinkage cracking
- Reduces segregation, plastic settlement and bleed-water
- Provides three-dimensional reinforcement against micro-cracking
- Increases surface durability, impact and abrasion resistance
- Reduction of in-place cost versus wire mesh for non-structural temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement
- UL certified for series D700 and D800 metal deck assemblies as alternate to WWF - CBXQ.R13773

Technical Information

Typical Engineering Data

Material	100% virgin monofilament polypropylene
Specific Gravity	0.91
Typical dosage rate	1.0 lb/yd^3 (0.6 kg/m^3)
Available lengths:	¼" (6 mm), ½" (13 mm), ¾" (19 mm), and multi-length blend (ML)
Melt point	320°F (160°C)
Electrical and Thermal Conductivity	low
Water Absorption	negligible
Acid and Alkali Resistance	excellent

Packaging

PSI FIBERSTRAND 100 microfibers are packaged in 1.0 lb (0.45 kg), 1.5 lb (0.68 kg), 5.0 lb (2.27 kg) and 7.5 lb (3.4 kg) water soluble bags. Additional and special packaging configurations, including bulk, are also available upon request.

Shelf Life

3 years in original, unopened package.

Directions for Use

PSI FIBERSTRAND 100 microfibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material to the concrete mixer during batching. Fibers must be mixed with concrete for a minimum of three to five (3-5) minutes at maximum mixing speed, depending upon the mixer type, to ensure complete dispersion and uniformity.

Clean-Up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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PSI™ FIBERSTRAND™ 150

Polypropylene Microfiber

EUCLID CHEMICAL

Description

PSI FIBERSTRAND 150 is a monofilament polypropylene microfiber for concrete reinforcement that complies with ASTM C 1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and is specifically designed to help mitigate the formation of plastic shrinkage cracking in concrete. Typically used at a dosage rate of 0.67 lb/yd^3 to 1.0 lb/yd^3 (0.4 - 0.6 kg/m^3), PSI FIBERSTRAND 150 microfibers have been shown to greatly reduce plastic shrinkage cracking when compared to plain concrete. PSI FIBERSTRAND 150 microfibers also comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC32 for synthetic fibers.

Primary Applications

- Slabs on grade, sidewalks, driveways, curb work, overlays and toppings
- Footings, foundations, walls and tank applications
- Stucco applications, pre-cast concrete and pre-stressed beams
- Shotcrete, slope paving and composite steel deck construction

Features/Benefits

- Controls and mitigates plastic shrinkage cracking
- Reduces segregation, plastic settlement and bleed-water
- Provides three-dimensional reinforcement against micro-cracking and explosive spalling
- Increases surface durability and improves fire, impact and abrasion resistance
- Reduction of in-place cost versus wire mesh for non-structural temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Typical Engineering Data

Material	100% virgin monofilament polypropylene
Specific Gravity	0.91
Typical dosage rate	0.67 - 1.0 lb/yd^3 (0.4 - 0.6 kg/m^3)
Available lengths:	¼" (6 mm), ¾" (19 mm) and multi-length blend (ML)
Melt point	320°F (160°C)
Electrical and Thermal Conductivity	low
Water Absorption	negligible
Acid and Alkali Resistance	excellent

Packaging

PSI FIBERSTRAND 150 microfibers are packaged in 0.67 lb (0.3 kg), 1.0 lb (0.45 kg), 1.3 lb (0.59 kg) and 5.0 lb (2.27 kg) water soluble bags. Additional and special packaging configurations, including bulk, are also available upon request.

Shelf Life

3 years in original, unopened package.

Directions for Use

PSI FIBERSTRAND 150 microfibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material to the concrete mixer during batching. Fibers must be mixed with concrete for a minimum of three to five (3-5) minutes at maximum mixing speed, depending upon the mixer type, to ensure complete dispersion and uniformity.

Clean-Up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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PSI™ FIBERSTRAND™ F

Fibrillated Polypropylene Microfiber

EUCLID CHEMICAL

Description

PSI FIBERSTRAND F is a fibrillated polypropylene microfiber for concrete reinforcement that complies with ASTM C 1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and is specifically designed to help mitigate the formation of plastic shrinkage cracking in concrete. Typically used at a dosage rate of 1.5 lbs/yd^3 (0.9 kg/m^3), PSI FIBERSTRAND F microfibers have been shown to greatly reduce plastic shrinkage cracking when compared to plain concrete. PSI FIBERSTRAND F microfibers also comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC32 for synthetic fibers.

Primary Applications

- Slabs on grade, sidewalks, driveways, curb work, overlays and toppings
- Footings, foundations, walls and tank applications
- Stucco applications, pre-cast concrete and pre-stressed beams
- Shotcrete, slope paving and composite steel deck construction

Features/Benefits

- Controls and mitigates plastic shrinkage cracking
- Reduces segregation, plastic settlement and bleed-water
- Provides three-dimensional reinforcement against micro-cracking
- Increases surface durability, impact and abrasion resistance
- Reduction of in-place cost versus wire mesh for non-structural temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Typical Engineering Data

Material	100% virgin fibrillated polypropylene
Specific Gravity	0.91
Typical dosage rate	1.5 lbs/yd (0.9 kg/m^3)
Available lengths:	¼" (6 mm), ½" (13 mm), ¾" (19 mm), 1 ½" (38 mm), 2" (51 mm) and multi-length blend (ML)
Melt point	320°F (160°C)
Electrical and Thermal Conductivity	low
Water Absorption	negligible
Acid and Alkali Resistance	excellent

Packaging

PSI FIBERSTRAND F microfibers are packaged in 0.75 lb (0.34 kg), 1.0 lb (0.45 kg), 1.5 lb (0.68 kg) and 2.0 lb (0.9 kg) water soluble bags. Special packaging configurations are also available upon request.

Shelf Life

3 years in original, unopened package.

Directions for Use

PSI FIBERSTRAND F microfibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material to the concrete mixer during batching. Fibers must be mixed with concrete for a minimum of three to five (3-5) minutes at maximum mixing speed, depending upon the mixer type, to ensure complete dispersion and uniformity.

Clean-Up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3" (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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PSI™ FIBERSTRAND™ MULTI-MIX 80

Polypropylene Microfiber

EUCLID CHEMICAL

Description

PSI FIBERSTRAND MULTI-MIX 80 is a fine denier monofilament polypropylene microfiber for concrete reinforcement that complies with ASTM C 1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and is specifically designed to help mitigate the formation of plastic shrinkage cracking in concrete. Typically used at a dosage rate of 0.5 lb/yd³ (0.3 kg/m³), PSI FIBERSTRAND Multi-Mix 80 microfibers will greatly reduce plastic shrinkage cracking when compared to plain concrete. PSI FIBERSTRAND Multi-Mix 80 microfibers also comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC32 for synthetic fibers.

Primary Applications

- Flatwork for industrial, commercial and residential concrete projects
- Footings, foundations, walls and tank applications
- Stucco, concrete pipe, vault structures and pre-cast / pre-stressed beams
- Shotcrete

Features/Benefits

- Controls and mitigates plastic shrinkage cracking
- Reduces segregation and bleed-water
- Provides three-dimensional reinforcement against micro-cracking and explosive spalling
- Increases surface durability and improves fire, impact and abrasion resistance
- Reduction of in-place cost versus wire mesh for non-structural temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Typical Engineering Data

Material	100% virgin monofilament polypropylene
Specific Gravity	0.91
Typical dosage rate	0.5 lbs/yd³ (0.3 kg/m³)
Available lengths	¼" (6 mm), ½" (13 mm)
Melt point	320°F (160°C)
Electrical and Thermal Conductivity	low
Water Absorption	negligible
Acid and Alkali Resistance	excellent

Packaging

PSI FIBERSTRAND Multi-Mix 80 microfibers are packaged in 0.5 lb (0.23 kg), 1.0 lb (0.45 kg) and 1.5 lb (0.68 kg) water soluble bags. Special packaging configurations are also available upon request.

Shelf Life

3 years in original, unopened package.

Directions for Use

PSI FIBERSTRAND Multi-Mix 80 fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material to the concrete mixer during batching. Fibers must be mixed with concrete for a minimum of three to five (3-5) minutes at maximum mixing speed, depending upon the mixer type, to ensure complete dispersion and uniformity.

Clean-Up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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PSI™ FIBERSTRAND™ N

Nylon Microfiber

EUCLID CHEMICAL

Description

PSI FIBERSTRAND N is a monofilament nylon microfiber for concrete reinforcement that complies with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete, and is specifically designed to help mitigate the formation of plastic shrinkage cracking in concrete. Typically used at a dosage rate of 1.0 lb/yd^3 (0.6 kg/m^3), PSI FIBERSTRAND N microfibers comply with applicable portions of the International Code Council (ICC) Acceptance Criteria AC32 for synthetic fibers.

Primary Applications

- Shotcrete and pool construction
- Slabs on grade
- Pre-cast units and slip form curbs
- Sprayed and plastered cement
- Decorative concrete

Features/Benefits

- Controls and mitigates plastic shrinkage cracking
- Reduces segregation and bleed-water
- Provides three-dimensional reinforcement against micro-cracking
- Increases surface durability, impact and abrasion resistance
- Reduction of in-place cost versus wire mesh for non-structural temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Typical Engineering Data

Material	monofilament nylon
Specific Gravity	1.16
Typical dosage rate	1.0 lb/yd^3 (0.6 kg/m^3)
Available lengths	½" (13 mm), ¾" (19 mm) and 1 ½" (39 mm)
Melt point	435°F (225°C)
Electrical and Thermal Conductivity	low
Water absorption	negligible
Acid and Alkali Resistance	excellent

Packaging

FIBERSTRAND N microfibers are packaged in 1.0 lb (0.45 kg) and 5.0 lb (2.27 kg) water soluble bags. Special packaging configurations are also available upon request.

Shelf Life

3 years in original, unopened package.

Directions for Use

PSI FIBERSTRAND N microfibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material to the concrete mixer during batching. Fibers must be mixed with concrete for a minimum of three to five (3-5) minutes at maximum mixing speed, depending upon the mixer type, to ensure complete dispersion and uniformity.

Clean-Up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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PSI™ STEEL FIBER C6560

Steel Macro-Fiber

EUCLID CHEMICAL

Description

PSI STEEL FIBER C6560 is a low carbon, cold drawn and hooked-end steel wire fiber designed to provide concrete with temperature and shrinkage crack control, enhanced flexural reinforcement, improved shear strength and increase the crack resistance of concrete. PSI STEEL FIBER C6560 complies with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete and ASTM A820, Type I fiber, Standard Specification for Steel Fibers for Fiber Reinforced Concrete. These steel macro-fibers will also improve impact, shatter, fatigue and abrasion resistance while increasing toughness of concrete. Dosage rates will vary depending upon the reinforcing requirements and can range from 20 to 100 lbs/yd^3 (12 to 60 kg/m^3) or higher.

Primary Applications

- Commercial and industrial slabs on ground and slabs on pile
- Bridge decks, overlays and pavements
- Structural and non-structural precast concrete applications
- Shotcrete, tunnel linings and slope stabilization
- Mass concrete and composite deck construction

Features/Benefits

- Increases impact, shatter and abrasion resistance of concrete
- Controls and mitigates plastic shrinkage cracking and reduces segregation and bleed-water
- Provides three-dimensional reinforcement against macro-cracking
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement
- Tested in accordance with ASTM C 1399, C 1550, and C 1609

Technical Information

Typical Engineering Data

Material	low carbon cold drawn steel wire
Deformation	hooked-end
Typical Dosage Rates	20 - 100 lb/yd^3 (12 - 60 kg/m^3) or higher
Available Lengths	2 3/8" (60 mm)
Apect Ratio	65
Tensile Strength	>160 ksi (>1100 MPa)
Appearance	bright, clean wire

Packaging

PSI STEEL FIBER C6560 is collated and packaged in 44 lb (20 kg) bags; 2640 net lbs (1200 kg) per pallet.

Shelf Life

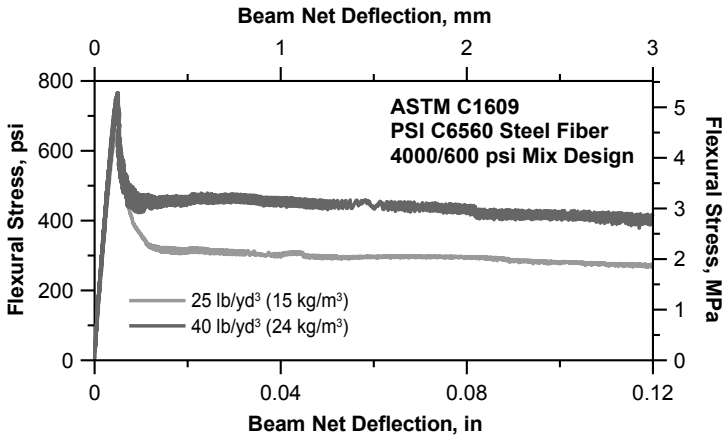
3 years in original, unopened package.

Directions for Use

PSI STEEL FIBER C6560 can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. The actual dosage rate will vary depending upon the application and performance requirements for each project. Fibers must be mixed with concrete for a minimum of four (4) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. The addition of PSI STEEL FIBER C6560 at provided dosage rates, will decrease the measured slump of concrete; however, additional water should not be added. The use of water reducers and/or superplasticizers, such as the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Fiber-reinforced concrete (FRC) is characterized by standard test methods such as ASTM C1399, C1609, and C1550 or RILEM TC162 (EN14651). The flexural residual strength of FRC is measured using these beam tests and is used for design purposes with proper conversion factors. Typical test results for ASTM C1609 (FRC beam) and C1550 (FRC round panel) are shown for PSI STEEL FIBER C6560 macro synthetic fiber tested at different dosage rates. These test results could vary with mix design and curing conditions.



Dosage	f_{e3}	R_{e3}
lb/yd³ (kg/m³)	psi (MPa)	%
25 (15)	288 (2.0)	44±4
40 (24)	445 (3.1)	56±5

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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PSI™ STEEL FIBER LHE 60

Steel Macro-Fiber

EUCLID CHEMICAL

Description

PSI STEEL FIBER LHE 60 is a low carbon, cold drawn steel wire fiber designed to provide concrete with temperature and shrinkage crack control, enhanced flexural reinforcement, improved shear strength, and increase the crack resistance of concrete. PSI Steel Fiber LHE 60 complies with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete and ASTM A820, Type I, Standard Specification for Steel Fibers for Fiber Reinforced Concrete. These steel macro-fibers will also improve impact, shatter, fatigue and abrasion resistance while increasing toughness of concrete. Dosage rates will vary depending upon the reinforcing requirements and can range from 25 to 100 lbs/yd^3 (15 to 60 kg/m^3).

Primary Applications

- Commercial and industrial slabs on ground
- Bridge decks, overlays and pavements
- Precast concrete applications and slabs on pile
- Shotcrete, tunnel linings and slope stabilization
- Mass concrete and composite deck construction

Features/Benefits

- Increases impact, shatter and abrasion resistance of concrete
- Reduces segregation, plastic settlement, and shrinkage cracking of concrete
- Provides three-dimensional reinforcement against macro-cracking
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Typical Engineering Data

Material	low carbon cold drawn steel wire
Deformation	hooked-end
Typical Dosage Rates	25 - 100 lb/yd^3 (15 - 60 kg/m^3)
Available Lengths	2 3/8" (60 mm)
Apect Ratio	65
Tensile Strength	>145 ksi (>1000 MPa)
Appearance	bright, clean wire

Packaging

PSI Steel Fiber LHE 60 is packaged in 44 lb (20 kg) bags; 2204 net lbs (1000 kg) per pallet.

Shelf Life

3 years in original, unopened package.

Directions for Use

PSI Steel Fiber LHE 60 can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. The actual dosage rate will vary depending upon the application and performance requirements for each project. Fibers must be mixed with concrete for a minimum of four (4) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. The addition of PSI Steel Fiber LHE 60 at provided dosage rates, will decrease the measured slump of concrete; however, additional water should not be added. The use of water reducers and/or superplasticizers, such as the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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PSI™ CRIMPED STEEL FIBER

Steel Macro-Fiber

EUCLID CHEMICAL

Description

PSI Crimped Steel Fiber are low carbon, cold drawn steel wire fibers designed to provide concrete with temperature and shrinkage crack control, enhanced flexural reinforcement, improved shear strength and increase the crack resistance of concrete. PSI Crimped Steel Fiber complies with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete and ASTM A820, Type I, Standard Specification for Steel Fibers for Fiber Reinforced Concrete. These steel macro-fibers will also improve impact, shatter, fatigue and abrasion resistance while increasing toughness of concrete. Dosage rates will vary depending upon the reinforcing requirements and can range from 25 to 100 lbs/yd^3 (15 to 60 kg/m^3).

Primary Applications

- Commercial and industrial slabs on ground
- Bridge decks, overlays and pavements
- Precast concrete applications
- Shotcrete, tunnel linings and slope stabilization
- Mass concrete and composite deck construction

Features/Benefits

- Increases impact, shatter and abrasion resistance of concrete
- Reduces segregation, plastic settlement, and shrinkage cracking of concrete
- Provides three-dimensional reinforcement against macro-cracking
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Typical Engineering Data

Material	low carbon cold drawn steel wire
Deformation	continuously deformed circular segment
Typical Dosage Rates	25 - 100 lb/yd^3 (15 - 60 kg/m^3)
Available Lengths	1 ½" (38 mm), 2" (50 mm)
Apect Ratio	34, 45
Tensile Strength	140 - 180 ksi (966 - 1242 MPa)
Appearance	bright, clean wire

Packaging

PSI Crimped Steel Fiber is packaged in 55 lb (25 kg) bags; 2200 net lbs (1000 kg) per pallet.

Shelf Life

3 years in original, unopened package.

Directions for Use

PSI Crimped Steel fibers can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. The actual dosage rate will vary depending upon the application and performance requirements for each project. Fibers must be mixed with concrete for a minimum of four (4) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. The addition of PSI Crimped Steel Fiber, at provided dosage rates, will decrease the measured slump of concrete; however, additional water should not be added. The use of water reducers and/or superplasticizers, such as the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

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EUCLID CHEMICAL

PSI™ CRIMPED STEEL FIBER FB

Steel Macro-Fiber with Synthetic Fibrillated Micro-Fiber Blend

Description

PSI Crimped Steel Fiber FB are low carbon, cold drawn steel wire fibers combined with 100% virgin multi-length fibrillated polypropylene micro-synthetic fibers designed to provide concrete with plastic shrinkage crack protection, temperature and shrinkage crack control, enhanced flexural reinforcement, improved shear strength and increase the crack resistance of concrete. PSI Crimped Steel Fiber FB complies with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete and ASTM A820, Type I, Standard Specification for Steel Fibers for Fiber Reinforced Concrete. This steel macro-fiber blend will also improve impact, shatter, fatigue and abrasion resistance while increasing toughness of concrete. Dosage rates will vary depending upon the reinforcing requirements and can range from 24 to 96 lbs/yd^3 (14 to 57 kg/m^3).

Primary Applications

- Commercial and industrial slabs on ground
- Bridge decks, overlays and pavements
- Precast concrete applications
- Shotcrete, tunnel linings and slope stabilization
- Mass concrete and composite deck construction

Features/Benefits

- Increases impact, shatter and abrasion resistance of concrete
- Reduces segregation, plastic settlement, and shrinkage cracking of concrete
- Provides three-dimensional reinforcement against macro-cracking
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Typical Engineering Data

Material	low carbon cold drawn steel wire and 100% virgin polypropylene multi-length fibrillated fiber
Available Lengths	steel fiber - 1 ½" (38 mm) synthetic fiber - blend of ½" & ¾" (13 & 19 mm)
Typical Dosage Rates	24 - 96 lb/yd^3 (14 - 57 kg/m^3)
Apect Ratio	steel fiber - 34
Tensile Strength	140 - 180 ksi (966 - 1242 MPa)
Deformation	continuously deformed circular segment
Appearance	bright, clean wire with white synthetic fiber

Packaging

PSI Crimped Steel Fiber FB is packaged in 24 lb (10.9 kg) bags; 1728 net lbs (784 kg) per pallet.

Shelf Life

3 years in original, unopened package.

Directions for Use

PSI Crimped Steel Fiber FB can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. The actual dosage rate will vary depending upon the application and performance requirements for each project. Fibers must be mixed with concrete for a minimum of four (4) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. The addition of PSI Crimped Steel Fiber FB, at provided dosage rates, will decrease the measured slump of concrete; however, additional water should not be added. The use of water reducers and/or superplasticizers, such as the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

Rev. 08.19

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EUCLID CHEMICAL

PSI™ CRIMPED STEEL FIBER MB

Steel Macro-Fiber with Synthetic Monofilament Micro-Fiber Blend

Description

PSI Crimped Steel Fiber MB are low carbon, cold drawn steel wire fibers combined with 100% virgin multi-length monofilament polypropylene micro-synthetic fibers designed to provide concrete with plastic shrinkage crack protection, temperature and shrinkage crack control, enhanced flexural reinforcement, improved shear strength and increase the crack resistance of concrete. PSI Crimped Steel Fiber MB complies with ASTM C1116, Standard Specification for Fiber Reinforced Concrete and Shotcrete and ASTM A820, Type I, Standard Specification for Steel Fibers for Fiber Reinforced Concrete. This steel macro-fiber blend will also improve impact, shatter, fatigue and abrasion resistance while increasing toughness of concrete. Dosage rates will vary depending upon the reinforcing requirements and can range from 24 to 96 lbs/yd^3 (14 to 57 kg/m^3).

Primary Applications

- Commercial and industrial slabs on ground
- Bridge decks, overlays and pavements
- Precast concrete applications
- Shotcrete, tunnel linings and slope stabilization
- Mass concrete and composite deck construction

Features/Benefits

- Increases impact, shatter and abrasion resistance of concrete
- Reduces segregation, plastic settlement, and shrinkage cracking of concrete
- Provides three-dimensional reinforcement against macro-cracking
- Increases overall durability, fatigue resistance and flexural toughness
- Reduction of in-place cost versus wire mesh for temperature / shrinkage crack control
- Easily added to concrete mixture at any time prior to placement

Technical Information

Typical Engineering Data

Material	low carbon cold drawn steel wire and 100% virgin polypropylene multi-length monofilament fiber
Available Lengths	steel fiber - 1 ½" (38 mm) synthetic fiber - blend of ½" & ¾" (13 & 19 mm)
Typical Dosage Rates	24 - 96 lb/yd^3 (14 - 57 kg/m^3)
Apect Ratio	steel fiber - 34
Tensile Strength	140 - 180 ksi (966 - 1242 MPa)
Deformation	continuously deformed circular segment
Appearance	bright, clean wire with white synthetic fiber

Packaging

PSI Crimped Steel Fiber MB is packaged in 24 lb (10.9 kg) bags; 1728 net lbs (784 kg) per pallet.

Shelf Life

3 years in original, unopened package.

Directions for Use

PSI Crimped Steel Fiber MB can be added to the concrete mixture at any time prior to placement of the concrete. It is generally recommended to add any fiber material at the ready-mix concrete plant during batching. The actual dosage rate will vary depending upon the application and performance requirements for each project. Fibers must be mixed with concrete for a minimum of four (4) to five (5) minutes at maximum mixing speed, depending on the mixer type, to ensure complete dispersion and uniformity. The addition of PSI Crimped Steel Fiber MB, at provided dosage rates, will decrease the measured slump of concrete; however, additional water should not be added. The use of water reducers and/or superplasticizers, such as the Eucon series or the Plastol series of admixtures may be necessary to maintain desired workability.

Add other admixtures independently from fiber addition. When used properly, and placed in a concrete mix of sufficient workability, the fibers will not adversely alter the compressive or flexural strength of concrete or shotcrete.

Clean-up

Loose fiber material may be disposed in proper receptacles for refuse. Finishing equipment with fibers embedded in concrete should be thoroughly cleaned.

Precautions/Limitations

- Use of fibers may cause an apparent loss in measured slump of concrete. This may be offset with the use of a water reducing admixture if necessary.
- Fibers should never be added to a “zero-slump” concrete. Ensure a minimum concrete slump of 3” (80 mm) prior to addition of any fiber material. Fibers may also be added in loose form to aggregate charging devices.
- In all cases, consult the Safety Data Sheet before use.

Rev. 08.19

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MASONRY/MCP ADMIXTURES

EUCON™ BLOCKTITE

Integral Water Repellent For Concrete Masonry

EUCLID CHEMICAL

Description

EUCON BLOCKTITE is a ready-to-use liquid admixture formulated to resist water penetration, and migration in concrete masonry and other cementitious products. This polymeric formula is added to the concrete during mixing and forms a protective barrier throughout upon curing. EUCON BLOCKTITE limits the transport of soluble salts that cause secondary efflorescence.

Primary Applications

- Concrete block and brick
- Segmental retaining wall units
- Concrete pavers
- Stone veneer, precast
- Cast stone

Features/Benefits

- Provides long lasting protection from wind-driven rain
- Reduces the migration of salts that can cause efflorescence
- Reduces capillary wicking, resists common staining

Technical Information

Appearance White, free flowing liquid

Specific Gravity . . 1.02

Freezing Point . . 20°F (-7°C)

Packaging

EUCON BLOCKTITE is available in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

6 months in original, unopened container.

Specifications/Compliances

EUCON BLOCKTITE/BLOCKTITE MORTAR ADMIXTURE achieves excellent (E-Rated) results when tested in accordance with ASTM E 514-90, Standard Test Method for Water Penetration and Leakage Through Masonry (extended to 72 hours) with 0% dampness on interior walls.

Directions for Use

Dosage Rate: Add EUCON BLOCKTITE to the concrete mixture after all of the water has been introduced, then mix adequately (45sec. to 2min. - depending on mixer) to achieve proper dispersion.

WATER REPELLENCY

Normal and Medium Weight Block - 18 to 24 oz /100 lbs (1175 to 1565 mL/100 kg) of cement.

Lightweight Block - 28 to 32 oz/100 lbs (1828 to 2086 mL/100 kg) of cement.

IMPORTANT: The optimal dosage of EUCON BLOCKTITE is determined as part of the Euclid Chemical BLOCKTITE CERTIFICATION PROGRAM. For test methods used to evaluate such performance, please refer to NCMA TEK 19-7, "Characteristics of Concrete Masonry Units with Integral Water Repellent."

EFFLORESCENCE CONTROL - 8 to 16 oz./ 100 lbs (520 to 1044 ml/100 kg) of cement.

NOTE: EUCON BLOCKTITE is a component/option of the BLOCKTITE SYSTEM (of block and mortar admixtures) for water repellency. Specified water-repellent projects must include BLOCKTITE MORTAR ADMIXTURE in the asssociated masonry mortar per data sheet and label instructions. Failure to do so violates the guide specification and will compromise the performance of the BLOCKTITE SYSTEM. The use of EUCON BLOCKTITE/BLOCKTITE MORTAR ADMIXTURE will not compensate for flaws in building design, inadequate production procedures, or improper construction practices.

Design and construction details must observe applicable design codes and include the recommendations of NCMA TEK 10-1A: Crack Control in Concrete Masonry Walls; TEK 19-1: Water Repellents for Concrete Masonry Walls; TEK 19-2A: Design for Dry Single-Wythe Concrete Masonry Walls; TEK 19-4A: Flashing Strategies for Concrete Masonry Walls; TEK 19-5A: Flashing Details for Concrete Masonry Walls

Only concave or "V" tooled joints should be allowed for water repellent masonry construction incorporating the EUCON BLOCKTITE SYSTEM. These recommendations are supported by both the National Concrete Masonry Association (NCMA) and the Brick Institute of America (BIA).

For added protection, The Euclid Chemical Company recommends an exterior application of CHEMSTOP WB Heavy Duty penetrating sealer. Consult your Euclid Chemical representative for information on this product.

Precautions/Limitations

- **DO NOT ALLOW TO FREEZE**. EUCON BLOCKTITE is not useable after it freezes.
- EUCON BLOCKTITE performs optimally with quality materials and proper mix designs
- EUCON BLOCKTITE will not compensate for flaws in building design, improper production procedures, or improper construction methods. The Euclid Chemical Company is not resposible for inappropriate use of EUCON BLOCKTITE.
- BLOCKTITE SYSTEM SPECIFICATIONS can be found in ARCOM MasterSpec Section 042200
- For bulk storage, re-circulation of EUCON BLOCKTITE may be necessary - your local Euclid Chemical representative will assist you in this process.
- In all cases, consult the Safety Data Sheet before use.

Rev. 05.17

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EUCON™ FOR-CAST N

Plasticizing Admixture for Manufactured Concrete Products

EUCLID CHEMICAL

Description

EUCON FOR-CAST N polycarboxylate-based plasticizer was formulated to improve the manufacturing efficiency, consistency, and visual appeal of machine-made concrete products. EUCON FOR-CAST N adds mix flowability, cement efficiency, and strength development. EUCON FOR-CAST N also refines surface texture, adds edge and corner definition, and reduces the potential for chipping.

Primary Applications

- Concrete block and brick
- Concrete pavers, patio products
- Segmental retaining wall units
- Dry-cast concrete pipe
- Extruded hollow core slabs
- Concrete roofing tile

Features/Benefits

- Improves production cycle times
- Sharpens edge and corner definition
- Provides a tightened, no-swipe texture
- Enhances texture consistency
- Reduces wear of molds and profilers

Technical Information

Physical Properties

Specific Gravity . . 1.02

Freeze Point . . . . 20°F (-6.7°C)

Appearance: EUCON FOR-CAST N is an amber liquid that will not change the color of concrete.

Packaging

EUCON FOR-CAST N is available in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Directions for Use

EUCON FOR-CAST N may be introduced with initial mix water or after the cement has been wetted. Never add EUCON FOR-CAST N directly on cement. Mix thoroughly as determined by mixer type. EUCON FOR-CAST N is intended for use at a rate of 2 to 6 oz per 100 lbs.(130 to 391 mL/100 kg) of cementitious materials. EUCON FOR-CAST N is compatible with all Euclid Chemical manufactured concrete admixtures.

Precautions/Limitations

- Production trials are recommended to determine dose response. Contact your local Euclid Chemical sales representative for any assistance needed.
- Protect from freezing. If frozen, EUCON FOR-CAST N can be reconstituted by mechanical means - never agitate with air.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.16

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EUCON™ FOR-CAST PE

Efflorescence Controlling Admixture for Concrete Masonry

EUCLID CHEMICAL

Description

EUCON FOR-CAST PE is an organic, oil-based admixture used to control the unsightly haze of primary efflorescence on concrete masonry products. This usually appears during the first 72 hours after production as original mix moisture evaporates.When exposed to carbon dioxide in the atmosphere, this weak solution of mainly calcium hydroxide is converted to a white, powdery calcium carbonate. EUCON FOR-CAST PE complexes with these salts and inhibits their ability to move through the water filled capillaries. EUCON FOR-CAST PE is typically used as part of an efflorescence control admixture "system".

Primary Applications

- Concrete block
- Concrete roofing tile
- Concrete pavers
- Segmental retaining wall units
- Concrete brick

Features/Benefits

- Improves color integrity
- Chemically treats the cause of efflorescence
- Reduces water absorption

Technical Information

Physical Properties

Specific Gravity . . 0.91

Freeze Point . . . . 40°F (4°C)

Color . . . . . Amber

Packaging

EUCON FOR-CAST PE is available in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened container.

Directions for Use

EUCON FOR-CAST PE is not water soluble, therefore it must be added to the aggregates and mixed at least 15 seconds prior to cement. If other admixtures are required, dose them later in the batch sequence per product recommendations.

EUCON FOR-CAST PE is compatible with all Euclid Chemical concrete masonry admixtures. Follow the directions for use carefully.

EUCON FOR-CAST PE is intended for use at a rate of 4 -10 oz per 100 lbs. (261 - 650 mL / 100 kg) of cement.

Precautions/Limitations

- Store material above at 40°F (4°C).
- Do not allow EUCON FOR-CAST PE to freeze.
- Dose independently from other admixtures, and before cement is discharged
- If efflorescence persists after using EUCON FOR-CAST PE, consult your local Euclid Chemical representative for other possible solutions.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ FOR-CAST RM

Rheology Modifying Admixture for Low-Slump Concrete

EUCLID CHEMICAL

Description

EUCON FOR-CAST RM is a rheology-modifying admixture that adds mobility and plasticity to low slump concrete. FOR-CAST RM speeds concrete flow and compaction rates while reducing void space, bugholes, and other surface defects. FOR-CAST RM is particularly effective when used with PLASTOL mid/high-range water reducers to produce high integrity dry-cast pipe, slabs, and other elements. FOR-CAST RM admixture is also useful in slip-formed paving, curb & gutter placement, and concrete barrier walls.

Primary Applications

- Dry-cast pipe & related products
- Extruded hollow-core slabs
- Slip-formed concrete of all types

Features/Benefits

- Thixotropic properties add response to vibration
- Reduced stickiness speeds material flow, compaction
- Lower friction improves mold fill and cast surface finish
- Modifications lower mix, placement, & defect related costs

Technical Information

Physical Properties

Specific Gravity.....1.011

Freezing Point.....32°F (0°C)

Appearance: EUCON FOR-CAST RM is a dark brown, free flowing liquid

EUCON FOR-CAST RM adds production efficiency and visual appeal to low slump concrete and concrete products while maintaining normal concrete consistencies. Improved flow and compaction rate translates to lower pipe production cycle times, and increased concrete extrusion rates. EUCON FOR-CAST RM also aids in the immediate stripping of dry-cast pipe, and reduces wear of augers, rollers, vibrators, and profilers.

EUCON FOR-CAST RM is compatible with a wide range of EUCON plasticizers, PLASTOL mid/high range water-reducers (and most other admixture types) and can be used at any mix consistency to improve formed surfaces.

EUCON FOR-CAST RM complies with ASTM C 494/C 494M for Type S (Specific Performance)

Packaging

EUCON FOR-CAST RM is available in 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

6 months in original, unopened container.

Directions for Use

EUCON FOR-CAST RM is recommended for use at a rate of 2 to 6 oz/100 lbs (131 to 392 mL/100 kg) of cementitious materials.

EUCON FOR-CAST RM is compatible with other EUCON admixtures, however, any products used in combination should be added separately, and in accordance with directions for their use. Trial mixes are recommended to determine the dose response and combined effect with other products in use. EUCON FOR-CAST RM may be added to the concrete at any point in the mixing process providing that it does not contact dry cement, and that adequate mixing is allowed to fully disperse the product.

Precautions/Limitations

- EUCON FOR-CAST RM performs optimally with PLASTOL polycarboxylate-based admixtures and will reduce water demand when used in combination.
- DO NOT allow EUCON FOR-CAST RM to freeze. If the product has frozen, thaw using mechanical agitation if necessary, but never agitate with air. Contact your local Euclid Chemical sales representative for assistance with this process.
- In all cases, consult the Material Safety Data Sheet before use.

Rev. 09.18

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EUCON™ FOR-CAST S

Plasticizing Admixture for Manufactured Concrete Products

EUCLID CHEMICAL

Description

EUCON FOR-CAST S swipe-producing, plasticizing admixture was formulated to improve the manufacturing efficiency, consistency, and visual appeal of machine-made (dry-cast) concrete products. Its select blend of wetting agents adds mix flowability, cement efficiency, and cost effectively modifies the texture of formed concrete surfaces. EUCON FOR-CAST S also improves edge and corner definition, and reduces the potential for chipping.

Primary Applications

- Concrete block and brick
- Concrete pavers, patio products
- Segmental retaining wall units
- Dry-cast concrete pipe
- Extruded hollow core slabs
- Concrete roofing tile

Features/Benefits

- Improves production cycle times
- Sharpens edge and corner definition
- Economically modifies surface texture
- Enhances freeze-thaw durability
- Reduces wear of molds and profilers

Technical Information

Physical Properties

Specific Gravity . . 1.01

Freeze Point . . . . 30°F (-1.1°C)

Appearance: EUCON FOR-CAST S is an amber liquid that will not change the color of concrete.

Packaging

EUCON FOR-CAST S is available in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Directions for Use

EUCON FOR-CAST S may be introduced with initial mix water or after the cement has been wetted. Never add EUCON FOR-CAST S directly on cement. Mix thoroughly as determined by mixer type. EUCON FOR-CAST S is intended for use at a rate of 2 to 6 oz per 100 lbs.(130 to 391 mL/100 kg) of cementitious materials. EUCON FOR-CAST S is compatible with all Euclid Chemical manufactured concrete admixtures.

Precautions/Limitations

- Production trials are recommended to determine dose response. Contact your local Euclid Chemical sales representative for any assistance needed.
- Protect from freezing. If frozen, EUCON FOR-CAST S can be reconstituted by mechanical means - never agitate with air.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ FOR-CAST SC

Plasticizing Admixture for Manufactured Concrete Products

EUCLID CHEMICAL

Description

EUCON FOR-CAST SC swipe-producing, concentrated plasticizer was formulated to improve the manufacturing efficiency, consistency, and visual appeal of machine-made concrete products. EUCON FOR-CAST SC adds mix flowability, cement efficiency, and cost-effectively modifies the texture of formed concrete surfaces. EUCON FOR-CAST SC also improves edge and corner definition, and reduces the potential for chipping.

Primary Applications

- Concrete block and brick
- Concrete pavers, patio products
- Segmental retaining wall units
- Dry-cast concrete pipe
- Extruded hollow core slabs
- Concrete roofing tile

Features/Benefits

- Improves production cycle times
- Sharpens edge and corner definition
- Economically modifies surface texture
- Enhances freeze-thaw durability
- Reduces wear of molds and profilers

Technical Information

Physical Properties

Specific Gravity . . 1.03

Freeze Point . . . . 20°F (-6.7°C)

Appearance: EUCON FOR-CAST SC is an amber liquid that will not change the color of concrete.

Packaging

EUCON FOR-CAST SC is available in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Directions for Use

EUCON FOR-CAST SC may be introduced with initial mix water or after the cement has been wetted. Never add EUCON FOR-CAST SC directly on cement. Mix thoroughly as determined by mixer type. EUCON FOR-CAST SC is intended for use at a rate of 0.5 to 3 oz per 100 lbs.(33 to 196 mL/100 kg) of cementitious materials. EUCON FOR-CAST SC is compatible with all Euclid Chemical manufactured concrete admixtures.

Precautions/Limitations

- Production trials are recommended to determine dose response. Contact your local Euclid Chemical sales representative for any assistance needed.
- Protect from freezing. If frozen, EUCON FOR-CAST SC can be reconstituted by mechanical means - never agitate with air.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ FOR-CAST SD

Plasticizing Admixture for Manufactured Concrete Products

EUCLID CHEMICAL

Description

EUCON FOR-CAST SD swipe producing and densifying admixture was formulated to improve the manufacturing efficiency, consistency, and visual appeal of machine-made (dry-cast) concrete products. Its select blend of wetting agents and polycarboxylate dispersants enhance the concrete's response to applied energy, add cement and pigment efficiency, and refine the texture of formed concrete surfaces. Further synergies are realized when EUCON FOR-CAST SD is used with HYDRAPEL series admixtures to produce decorative products of the highest integrity.

Primary Applications

- Concrete block and brick
- Concrete pavers, patio products
- Segmental retaining wall units
- Concrete roofing tile

Features/Benefits

- Improves production cycle times
- Sharpens edge and corner definition
- Maximizes density, ultimate strength
- Enhances freeze-thaw durability
- Reduces wear of molds and profilers

Technical Information

Physical Properties

Specific Gravity . . 1.02

Freeze Point . . . . 30°F (-1.1°C)

Appearance: EUCON FOR-CAST SD is an amber liquid that will not change the color of concrete.

Packaging

EUCON FOR-CAST SD is available in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Directions for Use

EUCON FOR-CAST SD may be introduced with initial mix water or after the cement has been wetted. Never add EUCON FOR-CAST SD directly on cement. Mix thoroughly as determined by mixer type. EUCON FOR-CAST SD is intended for use at a rate of 2 to 6 oz per 100 lbs.(130 to 391 mL/100 kg) of cementitious materials. EUCON FOR-CAST SD is compatible with all Euclid Chemical manufactured concrete admixtures.

Precautions/Limitations

- Production trials are recommended to determine dose response. Contact your local Euclid Chemical sales representative for any assistance needed.
- Protect from freezing. If frozen, EUCON FOR-CAST SD can be reconstituted by mechanical means - never agitate with air.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.16

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EUCON™ HYDRAPEL™ 2.0

Plasticizing/Efflorescence Controlling/ Water-Repellent Admixture

EUCLID CHEMICAL

Description

EUCON HYDRAPEL 2.0 is a multi-functional, high-performance admixture developed for concrete masonry and other applications. This extremely efficient, silicone polymer-based admixture greatly increases mix water tolerance by reducing concrete stickiness. HYDRAPEL 2.0 effectively overcomes challenging material characteristics such as gap-graded, harsh, or dusty aggregates , highly cemented mixes, and/or challenging mold configurations. HYDRAPEL 2.0 is also a qualified HYDRAPEL SYSTEM component for water repellent-specified masonry construction.

Primary Applications

- Pavers and patio products
- Segmental retaining wall units
- Concrete block and brick
- Mfd. stone veneer, decorative precast
- Concrete roof tiles
- Cast stone

Features/Benefits

- Uniquely increases water tolerance, cement efficiency, and production rate
- Markedly improved material flow maximizes density, strength, & product consistency
- Increased density reduces absorption, efflorescence potential, & freeze-thaw degradation
- Superior water repellency protects masonry from wind-driven rain, adds color retention
- Slower wetting and quicker drying of concrete products inhibits growth of mold and mildew

Technical Information

Appearance . . . . White, free flowing liquid.

Specific Gravity . . 0.96

Freezing Point . . 32°F (0°C)

EUCON HYDRAPEL 2.0 performs optimally at wetter-than normal (dry-cast) concrete consistencies and is most beneficial where material or production challenges exist.

Packaging

EUCON HYDRAPEL 2.0 is available in 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

6 months in original, unopened container.

Specifications/Compliances

EUCON HYDRAPEL 2.0/HYDRAPEL MORTAR ADMIXTURE achieves excellent (E-rated) results when tested in accordance with ASTM E 514, “Standard Test Method for Water Penetration and Leakage Through Masonry” (extended to 72 hours) with 0% dampness on interior walls.

Directions for Use

Dosage Rate: EUCON HYDRAPEL 2.0 is recommended for use at a rate of 0.5 to 4 oz/100 lbs (33 to 261 mL /100 kg) of cementitious material. Add EUCON HYDRAPEL 2.0 after cement has been fully wetted and the majority of total mix water has been introduced - then mix adequately (45sec.to 2min.- depending on mixer) to fully disperse.

SPECIALTY PLASTICIZER:

Use at 0.5 to 1 oz/100 lbs (33 to 65 mL/100 kg) of cementitious material to speed production rate, improve texture and consistency, and to provide differentiated properties in standard block production.

EFFLORESCENCE CONTROL & FREEZE-THAW DURABILITY:

EUCON HYDRAPEL 2.0 provides efflorescence control and enhanced freeze-thaw durability when used at a dosage rate of 1 to 2 oz/100 lbs (65 to 130 mL per 100kg) of cementitious material.

WATER REPELLENCY

Normal Weight Block - 1 to 2 oz/100 lbs (65 to 130 mL /100 kg) of cementitious material.

Medium Weight Block - 2 to 3 oz /100 lbs (130 to 196 mL /100 kg) of cementitious material.

Lightweight Block - 3 to 4 oz/100 lbs (196 to 261 mL/100 kg) of cementitious material.

IMPORTANT: The optimal dosage of EUCON HYDRAPEL 2.0 is determined as part of the Euclid Chemical HYDRAPEL CERTIFICATION PROGRAM. For test methods used to evaluate such performance, please refer to NCMA TEK 19-7, "Characteristics of Concrete Masonry Units with Integral Water Repellent."

NOTE: EUCON HYDRAPEL 2.0 is an optional component of the HYDRAPEL SYSTEM for specified water repellency. This 2-part system also requires the use of HYDRAPEL MORTAR ADMIXTURE to resist water penetration through the mortar joints. Design and construction details must observe applicable design codes and include the recommendations of NCMA TEK 10-1A: Crack Control in Concrete Masonry Walls; TEK 19-1: Water Repellents for Concrete Masonry Walls; TEK 19-2A: Design for Dry Single-Wythe Concrete Masonry Walls; TEK 19-4A: Flashing Strategies for Concrete Masonry Walls; TEK 19-5A: Flashing Details for Concrete Masonry Walls

Specified water-repellent projects must include HYDRAPEL MORTAR ADMIXTURE in the asssociated masonry mortar per data sheet and label instructions. Failure to do so will compromise the performance of the HYDRAPEL SYSTEM and is in violation of its guide specification. Incorporation of these products will not compensate for flaws in building design, inadequate production procedures, or improper construction practices.

Only concave or "V" tooled joints should be allowed for water repellent masonry construction incorporating the HYDRAPEL SYSTEM. These recommendations are supported by both the National Concrete Masonry Association (NCMA) and the Brick Institute of America (BIA). For added protection, The Euclid Chemical Company recommends an exterior application of CHEMSTOP WB Heavy Duty penetrating sealer. Consult your Euclid Chemical representative for additional information on this product.

Precautions/Limitations

- EUCON HYDRAPEL 2.0 requires storage between 40°F (4°C) and 95°F (35°C); protect from extreme heat (direct sunlight) and freezing temperatures. EUCON HYDRAPEL 2.0 is not usable after it freezes.
- EUCON HYDRAPEL 2.0 is intended for use with proper mix designs/production methods.
- During construction, excess mortar should be promptly removed; clean residue using procedures outlined in NCMA TEK 8-2: Removal of Stains from Concrete Masonry
- EUCON HYDRAPEL 2.0 will not compensate for flaws in building design, improper production procedures, or improper construction methods. The Euclid Chemical Company is not resposible for inappropriate use of EUCON HYDRAPEL 2.0.
- For added protection, use an exterior application of CHEMSTOP WB Heavy Duty penetrating sealer.
- HYDRAPEL SYSTEM SPECIFICATIONS can be found in ARCOM MasterSpec Section 042200
- In all cases, consult the Material Safety Data Sheet before use.

Rev. 01.19

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EUCON™ HYDRAPEL™ 2.5

Plasticizing/Efflorescence Controlling/ Water-Repellent Admixture

EUCLID CHEMICAL

Description

EUCON HYDRAPEL 2.5 is a multi-functional, high-performance admixture developed for concrete masonry and other applications. This highly efficient, silicone polymer-based admixture greatly increases mix water tolerance by reducing concrete stickiness. When added to the mix, HYDRAPEL 2.5 quickly disperses and chemically bonds to the concrete upon curing. As a result, concrete performance in general and freeze-thaw durability in particular is vastly improved. HYDRAPEL 2.5 is also a qualified HYDRAPEL SYSTEM component for water repellent-specified masonry construction.

Primary Applications

- Pavers and patio products
- Segmental retaining wall units
- Concrete block and brick
- Mfd. stone veneer, decorative precast
- Concrete roof tiles
- Cast stone

Features/Benefits

- Uniquely increases water tolerance, cement efficiency, production rate, & color vibrancy
- Markedly improved material flow maximizes density, strength, & product consistency
- Increased density reduces absorption, efflorescence potential, & freeze-thaw degradation
- Superior water repellency protects masonry from wind-driven rain, adds color integrity
- Slower wetting and quicker drying of concrete products inhibits growth of mold and mildew

Technical Information

Appearance . . . . White, free flowing liquid.

Specific Gravity . . 0.98

Freezing Point . . 32°F (0°C)

EUCON HYDRAPEL 2.5 performs optimally at wetter-than normal (dry-cast) concrete consistencies, particularly where maximized density, low absorption, and freeze-thaw durability are targeted.

Packaging

EUCON HYDRAPEL 2.5 is available in 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

12 months in original, unopened container.

Specifications/Compliances

EUCON HYDRAPEL 2.5/HYDRAPEL MORTAR ADMIXTURE achieves excellent (E-rated) results when tested in accordance with ASTM E 514, “Standard Test Method for Water Penetration and Leakage Through Masonry” (extended to 72 hours) with 0% dampness on interior walls.

19215 Redwood Road • Cleveland, OH 44110
800-321-7628 t • 216-531-9596 f

www.euclidchemical.com

Directions for Use

Dosage Rate: EUCON HYDRAPEL 2.5 is recommended for use at a rate of 1 to 8 oz/100 lbs (65 to 522 mL /100 kg) of cementitious material. Add EUCON HYDRAPEL 2.5 after cement has been fully wetted and the majority of total mix water has been introduced - then mix adequately (45sec to 2min - depending on mixer) to fully disperse.

SPECIALTY PLASTICIZER:

Use at 1 to 1.5 oz/100 lbs (65 to 98 mL/100 kg) of cementitious material to speed production rate, improve texture and consistency, and to provide differentiated properties in standard block production.

EFFLORESCENCE CONTROL & FREEZE-THAW DURABILITY:

EUCON HYDRAPEL 2.5 provides efflorescence control and freeze-thaw durability when used at a dosage rate of 2 to 3 oz/100 lbs (130 to 196 mL per 100kg) of cementitious material.

WATER REPELLENCY:

Normal Weight Block - 2 to 4 oz/100 lbs (130 to 260 mL /100 kg) of cementitious material.

Medium Weight Block - 3 to 5 oz /100 lbs (260 to 326 mL /100 kg) of cementitious material.

Lightweight Block - 4 to 8 oz/100 lbs (391 to 522 mL/100 kg) of cementitious material.

IMPORTANT: The optimal dosage of EUCON HYDRAPEL 2.5 is determined as part of the Euclid Chemical HYDRAPEL CERTIFICATION PROGRAM. For test methods used to evaluate such performance, please refer to NCMA TEK 19-7, "Characteristics of Concrete Masonry Units with Integral Water Repellent."

NOTE: EUCON HYDRAPEL 2.5 is an optional component of the HYDRAPEL SYSTEM for specified water repellency. This 2-part system also requires the use of HYDRAPEL MORTAR ADMIXTURE to resist water penetration through the mortar joints. Design and construction details must observe applicable design codes and include the recommendations of NCMA TEK 10-1A: Crack Control in Concrete Masonry Walls; TEK 19-1: Water Repellents for Concrete Masonry Walls; TEK 19-2A: Design for Dry Single-Wythe Concrete Masonry Walls; TEK 19-4A: Flashing Strategies for Concrete Masonry Walls; TEK 19-5A: Flashing Details for Concrete Masonry Walls

Specified water-repellent projects must include HYDRAPEL MORTAR ADMIXTURE in the associated masonry mortar per data sheet and label instructions. Failure to do so will compromise the performance of the HYDRAPEL SYSTEM and is in violation of its guide specification. Incorporation of these products will not compensate for flaws in building design, inadequate production procedures, or improper construction practices.

Only concave or "V" tooled joints should be allowed for water repellent masonry construction incorporating the HYDRAPEL SYSTEM. These recommendations are supported by both the National Concrete Masonry Association (NCMA) and the Brick Institute of America (BIA). For added protection, The Euclid Chemical Company recommends an exterior application of CHEMSTOP WB Heavy Duty penetrating sealer. Consult your Euclid Chemical representative for additional information on this product.

Precautions/Limitations

- EUCON HYDRAPEL 2.5 requires storage between 40°F (4°C) and 95°F (35°C); protect from extreme heat (direct sunlight) and freezing temperatures. EUCON HYDRAPEL 2.5 is not usable after it freezes.
- EUCON HYDRAPEL 2.5 is intended for use with proper mix designs/production methods.
- During construction, excess mortar should be promptly removed; clean residue using procedures outlined in NCMA TEK 8-2: Removal of Stains from Concrete Masonry
- EUCON HYDRAPEL 2.5 will not compensate for flaws in building design, improper production procedures, or improper construction methods. The Euclid Chemical Company is not resposible for inappropriate use of EUCON HYDRAPEL 2.5.
- For added protection, use an exterior application of CHEMSTOP WB Heavy Duty penetrating sealer.
- HYDRAPEL SYSTEM SPECIFICATIONS can be found in ARCOM MasterSpec Section 042200
- In all cases, consult the Material Safety Data Sheet before use.

Rev. 01.19

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EUCON™ PAVERTITE

Efflorescence Controlling Admixture for Concrete Masonry

EUCLID CHEMICAL

Description

EUCON PAVERTITE is a concentrated, high performance admixture developed specifically for the paver/hardscape and roof tile industries. Mixes treated with EUCON PAVERTITE exhibit better material flow, compaction, and texture uniformity. Throughout its dosage range, EUCON PAVERTITE adds strength, resists moisture, and reduces the potential for secondary efflorescence.

Primary Applications

- Concrete pavers, slabs
- Segmental retaining wall units
- Concrete roofing tile

Features/Benefits

- Reduced absorption to meet performance criteria
- Efflorescence control improves color/retention
- Higher density for maximized service life

Technical Information

Physical Properties

Specific Gravity . . 1.02

Freeze Point . . . . 20°F (-6.7°C)

Appearance: EUCON PAVERTITE is a white, free flowing liquid

Packaging

EUCON PAVERTITE is available in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

6 months in original, unopened container.

Directions for Use

EUCON PAVERTITE is intended for use at a rate of 6 to 12 oz/100 lbs (391 to 782 mL/100 kg) of cementitious materials. EUCON PAVERTITE is compatible with other EUCON plasticizing, efflorescence-controlling, and accelerating admixtures. Add EUCON PAVERTITE to the mixture after all of the water has been added and mix adequately (as needed based on mixer type). Any admixture products used in combination should be added spearately, and in accordance with directions for their use.

Precautions/Limitations

- EUCON PAVERTITE performs optimally with quality materials and proper mix designs/mix consistency - consult your Euclid Chemical representative for assistance with recommended mix designs and dosage rates.
- DO NOT allow EUCON PAVERTITE to freeze. Once the product has frozen, it becomes unusable.
- EUCON PAVERTITE, when stored in bulk, may need occasional re-circulation; use mechaniical agitation if necessary, but never agitate with air. Contact your local Euclid Chemical sales representative for assistance with this process.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.16

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MORTAR ADMIXTURES

ACCELGUARD® 80

Non-Chloride Accelerator for Mortar

EUCLID CHEMICAL

Description

ACCELGUARD 80 is an accelerating, water-reducing admixture for mortar that does not contain calcium chloride or added chloride ions. It improves certain properties of plastic and hardened mortar, provides benefits such as significant improvement in early stiffening and setting characteristics. ACCELGUARD 80 can be used in mortar which will be in contact with steel since it is completely free of materials that cause corrosion.

Primary Applications

- Cold weather masonry work
- Stucco
- Brick laying
- Block and structural clay tile

Features/Benefits

- Accelerates mortar set time in cold weather
- Aids in protecting masonry mortar in cold weather
- Reduces job delays during cold weather
- Increases strengths at all ages
- Improves workability
- Completely non-corrosive with steel embedments

Technical Information

Typical Engineering Data

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

Mortars proportioned & tested per ASTM C270

Typical Test Results @ 40°F (4°C)

Dosage: 16 oz (473 ml)/bag of masonry cement.

Mix	Setting Time	3 Day Strength psi (MPa)	7 Day Strength psi (MPa)
Type M			
Plain		470 (3.2)	975 (6.7)
with A80	28% faster than plain	575 (4.0)	1123 (7.7)
Type S			
Plain		428 (3.0)	825 (5.7)
with A80	40% faster than plain	434 (3.0)	876 (6.0)
Type N			
Plain		237 (1.6)	459 (3.2)
with A80	38% Faster than plain	312 (2.2)	543 (3.7)

Appearance: ACCELGUARD 80 is a slightly amber colored liquid which, when added to concrete has no effect on the appearance of treated concrete.

Packaging

ACCELGUARD 80 is packaged in 55 gal (208 L) drums, 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened container

Specifications/Compliances

- ACCELGUARD 80 is formulated to comply with ASTM C494, Type E, and consequently it may be used in cement mortars to improve their properties.
- In compliance with ASTM C494, Type E requirements, this product offers a minimum of 5% water reduction which will increase one day strength a minimum of 125% over plain and will quicken the setting time a minimum of 1 hour but no more than 3 hours and 30 minutes.

Dosage Rates

Dosage Rates [per 94 lb (42.6 kg)]

	Daily Working Temperature	
	32°F (0°C) and rising	25°F (-4°C) and rising
Portland cement mortars	1 quart (0.9 L)	1 1/2 quart (1.4 L)
Masonry cement	1 pint (0.47 L)	1 1/2 pint (0.7 L)
Colored mortars	1 pint (0.47 L)	1 1/2 pint (0.7 L)

NOTE: This product does not protect plastic mortar from freezing. This product will allow the mortar to gain strength at a faster rate in cold weather. The mortar must achieve a minimum strength of 500 psi (3.5 MPa) before exposure to freezing temperatures.

Directions for Use

ACCELGUARD 80 recommended dosage should be added directly to each batch of mortar at a rate of 6 oz (0.18 L) to 48 oz (1.4 L) per bag. Add directly to mortar after the initial charge of water and the mortar has "wetted out".

Mixing: ACCELGUARD 80 is ready to use and requires no pre-mixing.

The Euclid Chemical Company recommends the contractor follow typical cold weather masonry practices.

Precautions/Limitations

- Bring material to 32°F (0°C) before use.
- ACCELGUARD 80 will freeze at temperatures of approximately -15°F (-26°C); however, freezing and thawing will not harm the material if thoroughly agitated at 40°F (4°C) or higher.
- ACCELGUARD 80 is not an anti-freeze for mixed mortar.
- Test batches/mix designs/sample slabs may be required due to variations in local cement and aggregates.
- Keep mortar from freezing until a minimum strength of 500 psi (3.5 MPa) is reached.
- In all cases, consult the Safety Data Sheet before use.

Rev. 08.19

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EUCLID CHEMICAL

BLOCKTITE MORTAR ADMIXTURE

Integral Water Repellent Admixture For Mortar

Description

BLOCKTITE MORTAR ADMIXTURE is formulated to resist moisture intrusion and migration in masonry mortar, and is a component of the BLOCKTITE system for water repellent-specified masonry construction. BLOCKTITE MORTAR ADMIXTURE significantly reduces water absorption and efflorescence potential, and will help preserve color and overall mortar integrity as a result.

Primary Applications

- Masonry mortar

Features/Benefits

- Provides water repellency
- Reduces absorption
- Controls efflorescence
- Improves durability

Technical Information

Specific Gravity . . 1.02

Freezing Point . . 20°F (-6.7°C)

Color . . . . . White emulsion

Appearance: BLOCKTITE MORTAR ADMIXTURE is a white, free flowing liquid which, when added to mortar mixes, does not alter color.

Packaging

BLOCKTITE MORTAR ADMIXTURE is available in cases of 12-32 oz (0.9 L) bottles, 5 gal (18.9 L) pails and 55 gal (208 L) drums..

Shelf Life

18 months in original, unopened container; product beyond this age may be suitable for use if no separation is apparent. Please consult your local Euclid Chemical representative if shelf-life or material suitability for use is in question.

Dosage Rates

Use BLOCKTITE MORTAR ADMIXTURE at a rate of 16 oz (0.5 L) per bag or 1ft3 (0.03m3) of cementitious materials used in the mix. For pre-blended (bagged or bulk) masonry mortars, add 5 to 6 oz. (approximately 0.2L) per each 1ft3 (0.03m3) of material volume.

Master Format #:
04 22 00
04 05 13

Directions for Use

BLOCKTITE MORTAR ADMIXTURE should be added to approximately 75% of the mix water before sand or cement are added. Add more water as needed to achieve desired consistency and mix thoroughly.

Shake well before using.

Specifications/Compliances

BLOCKTITE MORTAR ADMIXTURE has been tested with EUCON BLOCKTITE and EUCON HYDRAPEL-treated CMUs in accordance with ASTM E 514 Standard Test Method for Water Penetration and Leakage Through Masonry, and achieved E-Rated (Excellent) performance after 72 hours of testing.

BLOCKTITE MORTAR ADMIXTURE complies with ASTM C1384 Standard Specification for Admixtures for Masonry Mortar.

Design and construction details must observe applicable design codes and include the recommendations of NCMA TEK 10-1A: Crack Control in Concrete Masonry Walls; TEK 19-1: Water Repellents for Concrete Masonry Walls; TEK 19-2A: Design for Dry Single-Wythe Concrete Masonry Walls; TEK 19-4A: Flashing Strategies for Concrete Masonry Walls; TEK 19-5A: Flashing Details for Concrete Masonry Walls.

Water-repellent specified projects must include BLOCKTITE MORTAR ADMIXTURE in the asssociated masonry mortar per data sheet and label instructions. Failure to do so will compromise the performance of the BLOCKTITE SYSTEM and is in violation of the guide specification. BLOCKTITE MORTAR ADMIXTURE will not compensate for flaws in building design, inadequate production procedures, or improper construction practices.

Only concave or “V” tooled joints should be allowed for water repellent masonry construction incorporating the BLOCKTITE SYSTEM. These recommendations are supported by both the National Concrete Masonry Association and the Brick Institute of America.

Precautions/Limitations

- Do not allow BLOCKTITE MORTAR ADMIXTURE to freeze. Once frozen, it becomes unusable.
- Shake well before using.
- BLOCKTITE MORTAR ADMIXTURE can effectively impart water repellency when adhering to proper industry (ASTM C 270) practices, and when concave or “V” joint tooling is used.
- Remove excess mortar promptly and clean residue using procedures outlined in NCMA TEK 8-2: Removal of Stains from Concrete Masonry.
- BLOCKTITE MORTAR ADMIXTURE will not compensate for flaws in building design, improper production procedures, or improper construction methods. The Euclid Chemical Company is not resposible for inappropriate use of BLOCKTITE MORTAR ADMIXTURE.

Rev. 11.14

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EUCO® WINTER ADMIXTURE

Liquid Masonry Mortar Accelerator

EUCLID CHEMICAL

Description

EUCO WINTER ADMIXTURE (EWA) is a multi-purpose liquid calcium chloride admixture designed to accelerate the normal setting rate of mortar, increase strength development at all ages, and to improve workability. It can be used safely with gray or white portland cement or colored masonry cements without causing discoloration.

Primary Applications

EUCO WINTER ADMIXTURE is used in mortar to lay brick, block, structural clay tile and glass block to eliminate the dangers connected with freezing mortar joints.

Features/Benefits

- Accelerates set times of mortar
- Aids in protecting mortar in cold weather
- Cuts construction cost - no cold weather job delay
- Increases strengths at all ages
- Improves workability

Technical Information

Typical Engineering Data

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

Test Results- Prepared Mortars

Brickset Mortar

Setting Rate @70°F (21°C)	Plain	with EWA
Initial Set	3 hrs15 min	2 hrs 15 min
Final Set	5 hrs 0 min	4 hrs 45 min

Compressive Strength ASTM C109, 2" (50 mm) cubes

	Plain	with EWA
24 hours	4.3 psi (.03 MPa)	64 psi (0.4 MPa)
3 days	495 psi (3.4 MPa)	606 psi (4 MPa)
7 days	787 psi (5.4 MPa)	1015 psi (7 MPa)
28 days	857 psi (6 MPa)	1191 psi (8 MPa)
Water Retention ASTM C91,	76.1%	82.3%
Absorption ASTM C642	7.0%	5.6%

Stoneset Mortar

Setting Rate @70°F (21°C)	Plain	with EWA
Initial Set	3 hrs 0 min	2 hrs 10 min
Final Set	5 hrs 0 min	4 hrs 30 min

Compressive Strength ASTM C109, 2" (50 mm) cubes

24 hours	8.5 psi (0.6 MPa)	44 psi (0.3 MPa)
3 days	317 psi (2.2 MPa)	329 psi (2.3 MPa)
7 days	630 psi (4.3 MPa)	643 psi (4.4 MPa)
28 days	773 psi (5.3 MPa)	800 psi (5.5 MPa)
Water Retention ASTM C91	74.0%	80.1%
Absorption ASTM C642	8.3%	7.5%

Appearance: EUCO WINTER ADMIXTURE is a clear liquid with a deep blue color.

Packaging

EUCO WINTER ADMIXTURE is packaged in 55 gal (208 L) drums, 5 gal (18.9 L) pails, and in cases of 1 gal (3.8 L) jugs (6 jugs per case).

Shelf Life

2 years in original, unopened container

Specifications/Compliances

- When tested according to ASTM C494, Type C, EUCO WINTER ADMIXTURE complies and gives a freeze-thaw relative durability factor of 102%.
- In compliance with ASTM C494, Type C requirements, this product will increase one day strength a minimum of 125% over plain and will quicken the setting time a minimum of 1 hour but no more than 3 hours and 30 minutes.

  NOTE: *This product does not protect plastic mortar from freezing. This product will allow the mortar to gain strength at a faster rate in cold weather. The mortar should achieve a minimum strength of 500 psi (3.4 MPa) before exposure to freezing temperatures.*

Dosage Rates

EUCO WINTER ADMIXTURE may be added directly to the gauging water [85 to 100ºF (29 to 38ºC) if possible] in the following proportions based on the temperatures expected during the 24 hours following the work:

Temperature	EWA	Water
25°F (-4°C)	1 gal (3.8 L)	15 gal (57 L)
20°F (-7°C)	1 gal (3.8 L)	10 gal (38 L)
15°F (-9°C)	1 gal (3.8 L)	7 gal (27 L)

Add an additional quart of EUCO WINTER ADMIXTURE for each bag of lime in the mix.

OR

EUCO WINTER ADMIXTURE may be added directly to each mortar batch. Add the quantity indicated per bag of cement and/or lime.

	Daily Working Temperature*		
	32° (0ºC)	**25° (-4ºC)**	**20° (-7ºC)**
Portland Cement Mortars	1 quart (0.9 L)	1 1/2 quart (1.4 L)	2 quart (1.9 L)
Masonry Cement	1 pint (0.5 L)	1 1/2 pint (0.7 L)	1 quart (0.9 L)
Colored Mortar	1 pint (0.5 L)	1 1/2 pint (0.7 L)	1 quart (0.9 L)

*The given temperatures are an assumed minimum with warming conditions.

Directions for Use

At the recommended dosage rate, EUCO WINTER ADMIXTURE is added directly to the gauging water.

The Euclid Chemical Company recommends the contractor follow typical cold weather concreting practices such as the guidelines in ACI 306, Standard Specification for Cold Weather Concreting.

Clean-Up

Clean tools and equipment with water before mortar hardens.

Precautions/Limitations

- Use no more than the prescribed amount of EUCO WINTER ADMIXTURE.
- Test batches/mix design/sample slabs may be required due to variations in local cement and aggregate.
- Keep mortar from freezing until a minimum strength of 500 psi (3.4 MPa) is reached.
- Do not add EUCO WINTER ADMIXTURE directly to dry cement.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.19

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EUCO® WINTER MIX POWDER

Powdered Masonry Mortar Accelerator

EUCLID CHEMICAL

Description

EUCO WINTER MIX POWDER (EWMP) is a multi-purpose, calcium chloride based admixture designed to accelerate the normal setting rate of mortar, increase strength development at all ages and improve workability. EUCO WINTER MIX POWDER is the dry version of the EUCO WINTER ADMIXTURE. It produces virtually the same results in mortar as does the EUCO WINTER ADMIXTURE liquid formula. Tests of EUCO WINTER ADMIXTURE liquid show that both plastic and hardened mortar properties are improved.

Primary Applications

EUCO WINTER MIX POWDER is used in mortar to lay brick, block, structural clay tile and glass block to eliminate the dangers connected with freezing mortar joints.

Features/Benefits

- Accelerates setting times of mortar
- Aids in protecting mortar in cold weather
- Cuts construction costs-no cold weather job delays
- Increases strengths at all ages
- Improves workability
- Does not affect bond strength of mortar

Technical Information

Typical Engineering Data

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

Test Results: Prepared Mortars

	Plain	With EWMP
Setting Rate:		
Initial Set:	3 hrs 15 min	2 hrs 15 min
Final Set:	5 hrs 0 min	4 hrs 45 min

Compressive Strength ASTM C109, 2" (50 mm) cubes

24 hours	4 psi (0.03 MPa)	65 psi (0.4 MPa)
3 days	500 psi (3.4 MPa)	600 psi (4.1 MPa)
7 days	780 psi (5.4 MPa)	1000 psi (6.9 MPa)
28 days	850 psi (5.9 MPa)	1200 psi (8.3 MPa)

Water Retention ASTM C91	76.1%	82.3%
Absorption ASTM C642	7.0%	5.6%

Test Results: Prepared Mortars (white cement)

	Plain	With EWMP
Setting Rate:		
Initial Set:	3 hrs 0 min	2 hrs 10 min
Final Set:	5 hrs 0 min	4 hrs 30 min

Compressive Strength ASTM C109, 2" (50mm) cubes

24 hours	8 psi (0.06 MPa)	45 psi (0.3 MPa)
3 days	300 psi (2.1 MPa)	330 psi (2.3 MPa)
7 days	630 psi (4.3 MPa)	640 psi (4.4 MPa)
28 days	775 psi (5.3 MPa)	800 psi (5.5 MPa)

Water Retention ASTM C91	74.0%	80.1%
Absorption ASTM C642	8.3%	7.5%

Appearance: EUCO WINTER MIX POWDER is a white, free flowing, fine grained powder.

Packaging

EUCO WINTER MIX POWDER is packaged in cases of 1.25 lb (0.6 kg) bags (20 bags per case).

Shelf Life

2 years in original, unopened package

Specifications/Compliances

- When tested in accordance with ASTM C494, Type C, EUCO WINTER MIX POWDER complies and gives a freeze/thaw relative durability of 102%.
- In compliance with ASTM C494, Type C , this product will increase one day strength a minimum of 125% over plain and will quicken the setting time a minimum of 1 hour but no more than 3 hours and 30 minutes.

NOTE: *This product does not protect plastic mortar from freezing. This product will allow the mortar to gain strength at a faster rate in cold weather. The mortar should achieve a minimum strength of 500 psi (3.4 MPa) before exposure to freezing temperatures.*

Dosage Rates

Temperatures ranging from 15 to 32°F (-10 to 0°C)
Masonry Cements: one bag of EUCO WINTER MIX POWDER to each bag of masonry cement.
Portland Cement Lime: Two bags EUCO WINTER MIX POWDER to each bag of Portland Cement.

Above 32°F (0°C)
Masonry Cements: one-half bag EUCO WINTER MIX POWDER to each bag of masonry cement.
Portland Cement-Lime: one bag EUCO WINTER MIX POWDER to each bag of Portland Cement.

Directions for Use

Empty contents of bag into mortar mixer with part or all of mixing water. Rotate mixer blades approximately 15 seconds until EUCO WINTER MIX POWDER has dissolved. Add cement, lime and sand or masonry cement and sand in normal manner. The Euclid Chemical Company recommends the contractor follow typical cold weather masonry practices. Please refer to "Recommended Practices for Cold Weather Masonry Construction" as published by the International Masonry Industry All-Weather Council or "Cold Weather Concrete Masonry Construction" as published by the National Concrete Masonry Association (publication TEK 16B).

Mixing: EUCO WINTER MIX POWDER is ready to use and requires no pre-blending.

Clean-Up

Clean tools and equipment with water before mortar hardens.

Precautions/Limitations

- EUCO WINTER MIX POWDER must be completely dissolved in water prior to the addition of masonry cement, lime and sand.
- Test batches/mix design/sample slabs may be required due to variations in local cement and aggregates.
- Keep concrete from freezing until a minimum strength of 500 psi (3.4 MPa) is reached.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.19

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EUCON™ RETARDER 100M

Workabiltiy Extending Admixture For Mortar

EUCLID CHEMICAL

Description

EUCON RETARDER 100 M is a liquid water-reducing and set retarding admixture for various mortar applications. EUCON Retarder 100M does not contain calcium chloride or other potential corroding materials and may be used in the presence of steel, aluminum or zinc embedments. EUCON Retarder 100M may be used at varying dosage rates to achieve extended board life and setting time, and can achieve up to 30 hours of extension providing that evaporation is prevented. It is compatible with bond-enhancing agents, water reducers, and integral water repellents.

Primary Applications

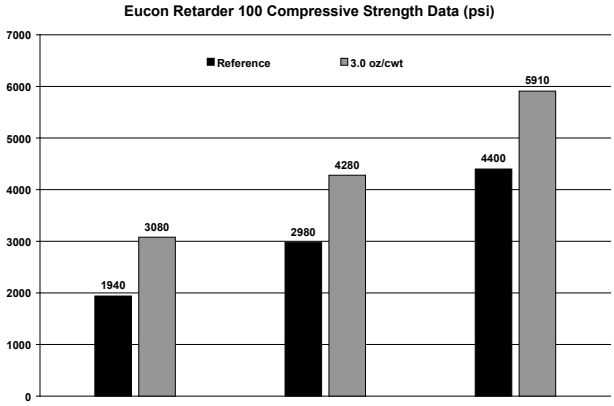
- Masonry mortar for block and brick
- Mortars for setting natural and manufactured stone
- General purpose and structural repair mortars
- Parge coatings and stuccos

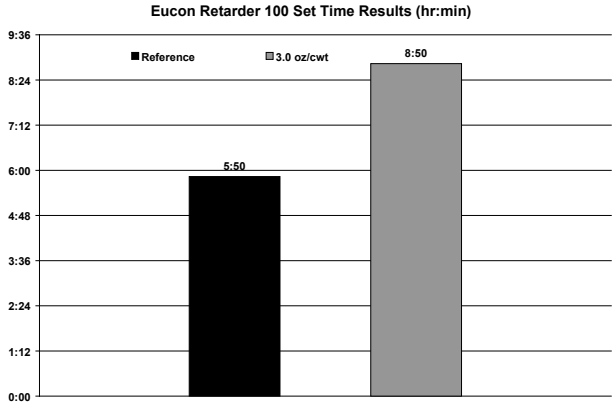
Features/Benefits

Plastic Properties
- Extends board life & setting time
- Improves finishability & tooling
- Improves workability/compaction
- Reduces water demand

Hardened Properties
- Increases strengths
- Improves finished appearance
- Reduces permeability

Technical Information





Packaging

EUCON RETARDER 100M is available in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums or 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON RETARDER 100M meets or exceeds the requirements of ASTM C1384 for Set Retarding Admixtures.

Directions for Use

EUCON RETARDER 100M is used at dosages of 2 to 6 oz per 100 lb (130 to 390 ml per 100 kg) of cementitious material for nominal board life extension and can vary significantly depending on materials and ambient conditions. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON RETARDER 100M should be added to the initial batch water of the mixture. Do not allow EUCON RETARDER 100M to come in contact dry cement.

Precautions/Limitations

- Care should be taken to prevent EUCON RETARDER 100M from freezing; however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Add to mix independent of other admixtures.
- In all cases, consult the Material Safety Data Sheet before use.

Rev. 10.10

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HYDRAPEL™ MORTAR ADMIXTURE

EUCLID CHEMICAL

Integral Water Repellent Admixture For Mortar

Description

HYDRAPEL MORTAR ADMIXTURE is a complex dry powder additive formulated to prevent moisture intrusion in masonry structures, and is an essential component of the HYDRAPEL Water Repellent Admixture System. HYDRAPEL MORTAR ADMIXTURE significantly reduces water absorption and efflorescence potential, and will help preserve color and overall mortar integrity as a result. HYDRAPEL MORTAR ADMIXTURE provides added bond strength without affecting plastic properties or normal construction rates.

Primary Applications

- Masonry Mortar
- Stucco
- Masonry Grout Fill

Features/Benefits

- Superior water repellency
- Excellent bond strength
- Reduced efflorescence potential
- Complies with ASTM C1384 for Water Repellent and Bond Enhancing Mortar Admixtures

Technical Information

Physical Properties

Specific Gravity 2.01

Freeze Point .....N/A

Appearance: Gray powder that does not alter color

Test methods used to evaluate HYDRAPEL MORTAR ADMIXTURE:

ASTM C1403, C1437, C1072, C780, C1314 and E514

Packaging

HYDRAPEL MORTAR ADMIXTURE is available in cartons of 12 zip-tear pouches weighing 2 lb (0.9 kg), and in 25 lb (11.4 kg) bags for dry blending applications.

Shelf Life

2 years in original, unopened packaging; product beyond this age may be suitable for use if no clumping or other damage is apparent. Please consult your local Euclid Chemical representative if shelf-life or material suitability for use is in question.

Dosage Rates

Use **HYDRAPEL MORTAR ADMIXTURE** at a rate of one 2 lb (0.9 kg) pouch per bag or 1 ft^3 (0.03 m^3) of cementitious materials used in the mix. For pre-blended (bagged or bulk) masonry mortars, add one 2 lb (0.9 kg) pouch for every 4 ft^3 (0.12 m^3) of material volume.

NOTE: For reduced absorption and efflorescence control (Non-Specified Water Repellent Construction) use 1/2 of the above dosage rate.

Directions for Use

HYDRAPEL MORTAR ADMIXTURE should be added to approximately 75% of the mix water before sand or cement are added. Simply open zip-tear pouch and pour contents into the mixer while idle. Batch as normal and add sufficient water to achieve desired consistency and mix for 5 minutes total.

Specifications/Compliances

HYDRAPEL MORTAR ADMIXTURE has been tested with EUCON HYDRAPEL and EUCON BLOCKTITE treated CMUs in accordance with ASTM E 514 (Standard Test Method for Water Penetration and Leakage Through Masonry), and achieved E-Rated (Excellent) performance after 72 hours.

HYDRAPEL MORTAR ADMIXTURE complies with ASTM C 1384 (Standard Specification of Admixtures for Masonry Mortar) as both water repellent and bond enhancing.

The HYDRAPEL SYSTEM has been tested per California Code of Regulations state chapter 2405(c) 3.C. for grout bond shear strength and showed increased CMU/grout bond strength when compared to untreated reference test specimens.

Design and construction details must observe applicable design codes and include the recommendations of NCMA TEK 10-1A: Crack Control in Concrete Masonry Walls; TEK 19-1: Water Repellents for Concrete Masonry Walls; TEK 19-2A: Design for Dry Single-Wythe Concrete Masonry Walls; TEK 19-4A: Flashing Strategies for Concrete Masonry Walls; TEK 19-5A: Flashing Details for Concrete Masonry Walls.

Specified water-repellent projects must include HYDRAPEL MORTAR ADMIXTURE in the associated masonry mortar per data sheet and label instructions. Failure to do so will compromise the performance of HYDRAPEL SYSTEM and is in violation of it's guide specification. The use of this product will not compensate for flaws in building design, inadequate production procedures, or improper construction practices.

Only concave or "V" tooled joints should be allowed for water repellent masonry construction incorporating the HYDRAPEL SYSTEM. These recommendations are supported by both the National Concrete Masonry Association and the Brick Institute of America. Remove excess mortar promptly and clean residue using procedures outlined in NCMA TEK 8-2: Removal of Stains from Concrete Masonry

Precautions/Limitations

HYDRAPEL MORTAR ADMIXTURE can effectively impart water repellency when adhering to proper industry (ASTM C 270) practices, and when concave or "V" joint tooling is employed (as recommended by NCMA and BIA).

HYDRAPEL MORTAR ADMIXTURE will not compensate for flaws in building design, improper production procedures, or improper construction methods. The Euclid Chemical Company is not responsible for inappropriate use of HYDRAPEL MORTAR ADMIXTURE.

Rev. 03.18

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INTEGRAL WATERPELLER

Water Repellent Admixture for Concrete and Mortar

EUCLID CHEMICAL

Description

INTEGRAL WATERPELLER is a powdered blend of stearate water repellents and other chemicals which, when used as an admixture, forms an internal barrier against water penetration. INTEGRAL WATERPELLER also increases the plasticity of mortar, reduces water absorption and thereby guards against freeze-thaw damage. INTEGRAL WATERPELLER will not appreciably change the air content of mortar or concrete.

Primary Applications

- Masonry mortar
- Foundation walls
- Floor slabs
- Cement stucco

Features/Benefits

- Reduces absorption
- Reduces capillary wicking
- Reduces vapor transmission through walls and slabs
- Provides greater workability
- Retains bond strength of mortar

Technical Information

Typical Engineering Data

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

Appearance

INTEGRAL WATERPELLER is a light gray powdery material.

Test Results	Absorption Ratio Fed. Spec. SS-C-181b	Relative Absorption	Concrete Absorption Total Immersion	
			10 minutes	24 Hours
Plain Mortar	.34	100%	1.28%	4.10%
Mortar with "Dry" Waterpeller	.18	53%	0.60%	2.70%

Packaging

INTEGRAL WATERPELLER is available in 25 lb (11.3 kg) bags.

Shelf Life

1 year in original, unopened package.

Dosage Rates

Use 4 to 6 lb (1.8 to 2.7 kg) of INTEGRAL WATERPELLER per 1 yd^3 (.76m^3) of concrete or mortar.

Directions for Use

Add INTEGRAL WATERPELLER to concrete or mortar as follows:

Use 1 lb (0.45 kg) per 94 lb (42.7 kg) bag of cement, or 1/4 lb per bag of prepared mortar.

In cement-lime mortar the above quantities should be added for each 1 ft^3 (0.03m^3) of lime, in addition to the quantity added for each bag of cement. INTEGRAL WATERPELLER may be added to the mix after all other components have been added.

Clean-Up

Clean tools and equipment with water before mortar hardens.

Precautions/Limitations

- INTEGRAL WATERPELLER must be protected from moisture during storage.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.19

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MISCELLANEOUS PRODUCTS

EUCO® DUST-DOWN

Roadway Dust Control Agent

EUCLID CHEMICAL

Description

EUCO DUST-DOWN is a low odor, natural liquid polymer which provides an effective long-lasting method for controlling dust on dirt, gravel, shell, coquina, limestone, clay, sand and marl roads. EUCO DUST-down has natural adhesive properties, which bind surface particles together forming a denser, more compact surface. EUCO DUST-down provides a better driving surface which is less permeable to water, and therefore, less likely to be washed away by rain or moisture uptake.

Primary Applications

Roads, driveways and parking lots at:

- Ready mix facilities
- Precast plants
- Aggregate manufacturers
- Farms
- Mines
- Construction sites

Features/Benefits

- Decreases construction site "track out"
- Reduces airborne allergens
- Decreases pot holes and surface break-up
- Decreases vehicle maintenance
- Promotes water conservation
- Reduces soil erosion
- Improves community relations
- Reduces liability
- Cost efficient and labor saving
- Reduces road maintenance

Packaging

EUCO DUST-down is available in 55 gal (208 L) drums, 275 gal (1041L) totes and in bulk.

Shelf Life

2 years in original unopened container.

Coverage

A general guide line for one pass is approximately one half ½ gal (1.89 L) of diluted mixture per square yard. Dilution rates may be varied depending on the type of surface being treated.

Directions for Use

EUCO DUST-down can be easily applied with conventional spray equipment. Recommended application rate for EUCO DUST-down is one (1) gal (3.9 L) of EUCO DUST-down to ten (10) gal (37.85 L) of water. If applying EUCO DUST-down for the first time, repeat application three (3) times (the goal is to reach an absorption depth of three inches). Treated areas will appear darker in color. Reapply when treated area appears to fade or after rain. This will be highly dependent on the amount of traffic.

Clean-up

Clean equipment with plain water.

Precautions/Limitations

- Equipment used to transport EUCO DUST-down should be clean and free of any contaminating residue.
- Water used to dilute EUCO DUST-down should not contain residues or other contaminants.
- The extent of dilution and the application rate should be carefully considered for the intended function.
- Consideration should be given to weather, soil and surrounding conditions.
- Use caution when opening unvented containers as pressure can accumulate.
- Foaming is a characteristic of EUCO DUST-down.
- Care should be taken to maintain EUCO DUST-down above freezing.
- In all cases, consult the Safety Data Sheet before use.

Rev. 02.19

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CONCRETE BLASTER™

High Performance Equipment Cleaner

EUCLID CHEMICAL

Description

CONCRETE BLASTER is a patented liquid with the ability to remove hardened, built-up concrete from tools and equipment. It is designed to eliminate the need for sand blasting, bushhammering and jack-hammering hardened concrete from equipment.

Primary Applications

- Ready mix trucks
- Transport buggies
- Trowels
- Troweling machines
- Screeds
- Floats
- Concrete forms
- Precast forms
- Concrete and mortar mixers
- Other concrete placing equipment

Features/Benefits

- Ready to use - no mixing required
- Reduces the related costs of sand blasting and chip-hammering
- Reduces labor costs and equipment damage normally associated with removing built-up, hardened concrete

Technical Information

Appearance: CONCRETE BLASTER is a clear liquid with a slight amber cast. When applied to concrete the product will foam slightly. CONCRETE BLASTER will not affect the appearance of typical equipment used in the concrete industry.

Packaging

CONCRETE BLASTER is packaged in 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened containers

Coverage

Approximately 3 gal (11.4 L) of CONCRETE BLASTER will be required to clean the typical rear exterior of a ready mix truck. This assumes an average depth of built-up concrete of 1/2" (13 mm).

Directions for Use

Surface Preparation: CONCRETE BLASTER works best when applied to dry concrete.

Mixing: CONCRETE BLASTER is packaged ready to use. No pre-mixing is required. Do not dilute.

Application: To remove hardened concrete, apply CONCRETE BLASTER directly to the area to be cleaned with a brush or pump-up type sprayer. **THE CONCRETE SURFACE MUST BE THOROUGHLY SATURATED.** Allow CONCRETE BLASTER to remain on the concrete until the cement matrix becomes soft to the touch. The minimum recommended time is 20 minutes but treated concrete may be left to react overnight. The product will continue to attack the cement matrix even after the foaming action has subsided.

After the concrete has softened, re-apply CONCRETE BLASTER and allow to remain on the surface for approximately 10 minutes. Remove concrete with a scraper. If additional concrete remains, subsequent applications may be necessary. The final application may be removed by power washing. Concrete buildup of 1/4" (6 mm) or more will require multiple applications. If treated concrete will set overnight, apply additional CONCRETE BLASTER the next morning to re-soften the concrete. Leave the fresh application on 10 to 15 minutes. Then, remove softened concrete as stated above.

Regular maintenance: CONCRETE BLASTER may be used on a regular basis to remove concrete build-up.

Clean-Up

Clean tools and equipment with soap and water.

Precautions/Limitations

- Though CONCRETE BLASTER is a relatively safe product to use, always wear protective clothing (rubber gloves, eye protection, etc.).
- Do not dilute or effectiveness will be greatly diminished.
- CONCRETE BLASTER contains a mild organic acid which may oxidize certain metals if left in contact for long periods of time. After the concrete residue has softened, complete the removal and thoroughly flush the area with clean water.
- Concrete surface must be dry.
- Do not allow this product to freeze.
- The effectiveness of CONCRETE BLASTER is reduced in cold weather.
- Protect concrete floors or driveways from spillage.
- A small area should be tested to ensure against staining of paint finishes.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.19

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DRUMCLEAN™ 100

High Performance Vehicle Cleaner

EUCLID CHEMICAL

Description

DRUMCLEAN 100 is a ready to use concrete residue cleaner designed specifically to clean the outside of ready-mix trucks. It is a uniquely formulated liquid acid optimized for everyday use and is safe on painted surfaces.

Primary Applications

- Ready mix trucks
- Concrete tools
- Concrete mixers
- Transport buggies

Features/Benefits

- Ready to use-no mixing required
- Pleasant odor
- Foaming action attacks concrete residue
- Safer replacement for muratic acid
- Extends equipment life
- More professional looking ready-mix trucks

Technical Information

Appearance: DRUMCLEAN 100 is a clear liquid with a slightly yellow tint. When applied to concrete, DRUMCLEAN 100 will foam slightly.

Packaging

DRUMCLEAN 100 is available in 275 gallon (1041 L) totes, 55 gallon (208 L) drums and in bulk.

Shelf Life

1 year in original, unopened package.

Coverage

Approximately 2 1/2 gal (9.46 L) will be required to clean an entire ready mix truck.

Directions for Use

To remove concrete residue from a mixer truck, apply DRUMCLEAN 100 with a stiff brush and allow to stand for 5 to 10 minutes. Brush loosened concrete off the equipment with water and wash with ARRMASOAP 25 to neutralize any excess acid residue.
To remove tougher concrete build-up inside the mixing drum, use CONCRETE BLASTER as directed.

Clean-Up

Rinse tools and equipment with water after washing with ARRMASOAP 25.

Precautions/Limitations

- DRUMCLEAN 100 is a corrosive liquid and should be handled with a face shield, rubber gloves, and skin protection
- Use only in well ventilated areas
- Avoid splattering
- Diluting of product will diminish effectiveness
- Protect concrete floors from spillage
- Do not leave on metal surfaces
- In all cases, consult the Safety Data Sheet before use.

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FORMSHIELD™ PURE

Premium, Oil-Based, Chemically Reactive Concrete Form Release

EUCLID CHEMICAL

Description

FORMSHIELD PURE is a premium, chemically reactive concrete form release agent with exceptional performance and ease of use that is unmatched by water-based form release products. FORMSHIELD PURE has a unique crystal clear formulation containing a proprietary ingredient that provides release capability superior to traditional form oils, making it ideal for use in precast and architectural concrete applications. FORMSHIELD PURE is compliant with all VOC regulations in the U.S. and Canada. Because it is not water-based, FORMSHIELD PURE does not require protection from freezing. Forms treated with FORMSHIELD PURE can be put to use faster than those treated with water-based release products. Metal, plastic, wood and composition forms strip cleanly with FORMSHIELD PURE.

Primary Application

Preventing the adhesion of concrete to forms of all types in precast and architectural concrete applications

Features/Benefits

- Forms release easily and cleanly from concrete
- No staining
- Compliant with all VOC regulations, including Federal EPA, OTC, LADCO, Maricopa County, CARB, and SCAQMD
- Dramatically reduces the occurrence of voids and bugholes
- Tolerant to freezing conditions during storage and transportation
- Treated forms are ready for use quickly
- U.S. DOT non-regulated: easy storage and shipping
- Very low odor

Technical Information

VOC content <5 g/L

Weight/gal 7.26 lb/gal (0.87 kg/L)

Appearance: FORMSHIELD PURE is a crystal clear liquid

Packaging

FORMSHIELD PURE is packaged in 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened container.

Specifications/Compliances

Corp of Engineers CE 1401.01 (17.4) & CW 03101 (5.3)

GSA CE 204 (3-03-K)

ACI 347

Compliant with Federal, OTC, California, and Maricopa County regulations

Coverage

	ft²/gal (m²/L)
Plywood Forms	350 to 500 (8.59 to 12.27)
Wood Composition Forms	350 to 500 (8.59 to 12.27)
Plastic Forms	800 to 1000 (19.63 to 24.54)
Metal Forms	800 to 1000 (19.63 to 24.54)

Note: Coverage rates are approximate and for estimating purposes only. Surface temperature, porosity and texture will determine actual material requirements.

Directions for Use

Surface Preparation: The form surface must be free from dirt, cement paste, hardened concrete and other residue that could transfer to the finished concrete surface. Before coating plywood forms, apply a heavy brush coat to the plywood edges to protect laminations.

Application: In cold weather or if FORMSHIELD PURE has been stored in a cold location, gently stir the product before using. FORMSHIELD PURE can be applied by brush, spray or roller. Apply in a continuous film, avoiding excessive buildup, runs and puddles. Forms treated with FORMSHIELD PURE will be ready to use within one hour on plywood and 2 to 3 hours on metal and plastic forms. Used forms can be re-coated with FORMSHIELD PURE if proper surface preparation techniques are followed.

Clean-Up

Clean tools and application equipment immediately after use with mineral spirits. Clean drips and overspray while still wet.

Precautions/Limitations

- Do not thin or dilute FORMSHIELD PURE.
- The viscosity of FORMSHIELD PURE increases at low temperatures, resulting in reduced sprayability.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.19

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FORMSHIELD™ WB

Economical, Water-Based Concrete Form Release

EUCLID CHEMICAL

Description

FORMSHIELD WB is a low cost, highly effective release agent for metal, plastic, wood and composition forms. It is a blend of natural organic chemicals which impart a waterproof film to prevent adhesion of concrete to the forms and provide for quick and easy release. FORMSHIELD WB is supplied ready to use as a thin, milky white colored liquid.

Primary Applications

Water-based formulation can be applied to forms of all types for easy removal from freshly placed concrete.

Features/Benefits

- Reduces labor and construction time
- Lowers costs
- Allows the forms to be re-used
- Minimizes clean-up and maintenance
- Can be used on metal or plastic forms and on previously oiled or untreated wood forms
- Excellent release properties
- Reduces transfer of wood grain markings

Technical Information

Weight/gal ..... 8.3 lb/gal (0.994 kg/L)
VOC ..... < 89 g/L
Appearance: FORMSHIELD WB is a milky white liquid

Packaging

FORMSHIELD WB is packaged in 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container

Specifications/Compliances

Corps of Engineers Specifications CE-1401.01
Corps of Engineers Specifications CW-03101

Coverage

Coverage rates are approximate and for estimating purposes only. Surface temperature, porosity and texture will determine actual material requirements.

	ft²/gal (m²/L)
Plywood forms	350 to 500 (8.59 to 12.27)
Wood composition forms	350 to 500 (8.59 to 12.27)
Plastic forms	800 to 1000 (19.63 to 24.54)
Metal forms	800 to 1000 (19.63 to 24.54)

Directions for Use

Surface Preparation: Forms must be free from dirt, hardened concrete, and other extraneous matter. Before coating plywood panel surfaces, apply one, preferably two, heavy brush coats to the edges to protect laminations.

Mixing: Mix FORMSHIELD WB prior to use to ensure that settling has not occurred.

Application: FORMSHIELD WB is applied by brush, spray, or roller to metal, plastic, or plywood forms. One or two heavy brushcoats should be applied to the edges of plywood forms to protect the laminations.

The surface of forms should receive one light, uniform coat. Avoid excessive build-up and runs or puddles since an excess of coating may retard the concrete. For proper performance, always make sure brush is fully saturated with FORMSHIELD WB. Attempts to "stretch or skinny" FORMSHIELD WB will result in sub-standard performance of product. FORMSHIELD WB should be applied evenly over the panel. One full coat provides proper protection. FORMSHIELD WB will set and be ready to use within one hour on plywood; 2 hours on metal and plastic forms.

Clean Up

Clean tools or equipment with water and soap/detergent immediately following use. Clean drips and overspray while still wet. Dried FORMSHIELD WB becomes very difficult to remove.

Precautions/Limitations

- Store in a dry, ventilated, 40°F to 90°F (4°C to 32°C) area. Protect from freezing.
- Do not thin or dilute FORMSHIELD WB.
- Do not apply in rain, and protect from rain for at least 1 hour after application.
- Do not apply FORMSHIELD WB when temperature is below freezing.
- FORMSHIELD WB is not recommended when concrete is to be steamcured, or for tilt up work.
- In all cases, consult the Safety Data Sheet before use.

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CONCRETE SURFACE RETARDER

Formula F & Formula S For Exposed Aggregate Surfaces

EUCLID CHEMICAL

Description

CONCRETE SURFACE RETARDER F & S are chemical formulations which retard, but do not "kill" the set of the mortar at the surface of concrete. When the underlying concrete has hardened, the retarded mortar surface can be flushed off with a stream of water and/or removed by scrubbing with a stiff brush. Since these compounds do not "kill" the set, if they are left on the concrete or unintentionally splashed on other fresh concrete, they will permit the concrete to eventually attain a set and achieve full strength. CONCRETE SURFACE RETARDER is available in two formulations to meet varying job requirements:

Formula F is a paint-like emulsion designed for application directly to forms.

Formula S is a neutral, sprayable liquid for application to freshly placed horizontal concrete surfaces.

Primary Applications

- Creation of exposed aggregate surfaces
- Precast panels
- Decorative sidewalks and walkways
- Bond improvement for water-proofing materials
- Slip-resistant surfaces
- Formulations for both horizontal and vertical

Features/Benefits

- Safe to use - easy to apply
- Works quickly and effectively
- Provides up to 1/4" (6 mm) depth retardation
- Reduces cost of mechanically preparing surfaces for waterproofing, stucco or plaster application
- Etch depth can be adjusted as desired

Technical Information

	Formula S	Formula F
Weight/gal	8.91 lb/gal (1.07 kg/L)	8.80 lb/gal (1.05 kg/L)
Solids Content	17%	30%
VOC	≤ 5 g/L	653 g/L

Appearance: CONCRETE SURFACE RETARDER **Formula F** is a tan paint-like emulsion for application on vertical surfaces such as forms. CONCRETE SURFACE RETARDER **Formula S** is a low viscosity green liquid for application directly on freshly placed horizontal concrete surfaces.

Packaging

CONCRETE SURFACE RETARDER F & S are packaged in 55 gal (208 L) drums and 5 gal (18.9 L) pails.

CONCRETE SURFACE RETARDER S is also available in cases of 1 gal (3.8 L) jugs (6 jugs per case).

Shelf Life

2 years in original, unopened containers

Coverage

Formula F: 150 ft^2/gal (3.7 m^2/L). This coverage rate will provide up to 1/4" (6 mm) of surface retardation.

Formula S: 100 to 200 ft^2/gal (2.5 to 4.9 m^2/L). This coverage rate will provide 1/8" to 3/16" (3.2 to 4.8 mm) of surface retardation.

Directions for Use

Surface Preparation: Forms to be coated should be clean and free of oil, dirt and form release agents.

Mixing: CONCRETE SURFACE RETARDER does not require pre-blending. These products should be used directly from the container.

Application: CONCRETE SURFACE RETARDER Formula F should be painted on forms without thinning in a continuous unbroken film. Forms may be coated several days in advance or in as short a time as will allow complete drying of the film. Drying time varies between one and four hours depending on weather conditions. In warm weather, forms may be stripped in one day, in cooler weather allow two to three days. Immediately after stripping remove the retarded surface mortar by flushing off with a stream of water and/or remove by scrubbing with a stiff brush. Pre-cast structural members should be stripped from their forms in their usual time and the surface mortar then removed.

CONCRETE SURFACE RETARDER Formula S is applied to freshly placed horizontal concrete surfaces immediately after final finishing operations. It should be applied by low pressure spray and the treated surfaces then covered to prevent rapid evaporation. The retarded mortar should be flushed off with water in 12 to 24 hours after application depending upon weather conditions.

Use BROWNTONE CS to cure and seal exposed aggregate concrete to give these surfaces a subtle, earthtoned look with an attractive gloss.

Clean Up

Clean tools and equipment with soap and water before the material dries.

Precautions/Limitations

- Do not use CONCRETE SURFACE RETARDER Formula F on styrofoam forms
- These products are affected by environmental conditions. Warmer temperatures will allow earlier stripping of forms and earlier surface flushing, while cooler temperatures delay these procedures.
- Store in a dry place and protect from freezing.
- In all cases, consult the Safety Data Sheet before use.

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EUCOBAR™

Evaporation Retardant and Finishing Aid

EUCLID CHEMICAL

Description

EUCOBAR is designed to be used as an evaporation retardant and finishing aid on concrete surfaces of all types. When sprayed over fresh concrete, EUCOBAR forms a monomolecular film that prevents rapid moisture loss from the concrete surface. It is easy to use requiring only the addition of water before spray application. EUCOBAR is especially effective when concreting operations must be performed in direct sun, wind, high temperatures, or low relative humidity.

Primary Applications

- Floors
- Pavements
- Concrete toppings
- Vertical/overhead repairs
- Dry shake floors including all SURFLEX and EUCO-PLATE formulations
- Specialty iron toppings
- Parking decks and ramps

Features/Benefits

- Holds in surface moisture on concrete floors, slabs, and repairs
- Helps prevent plastic shrinkage cracking
- Easy and economical to use
- Helps eliminate crusting caused by loss of surface moisture
- Water based for total compatibility with fresh concrete
- Excellent for both interior and exterior concrete projects
- Will not affect adhesion of curing compound or other treatments

Technical Information

EUCOBAR is a water based polymer concentrate that is readily dilutable in water.

Evaporation rate is a function of relative humidity, concrete temperature, air temperature and wind velocity. Plastic shrinkage cracking is a strong possibility when the rate of evaporation exceeds 0.2 lb/ft^2/hr (1.0 kg/m^2/hr). The chart on the back of this page (Fig. 2.1.5 of ACI 305, Hot Weather Concreting) is useful in determining the evaporation rate under a given set of jobsite conditions. Use EUCOBAR when the above limit is exceeded.

Appearance: EUCOBAR is a free flowing pink liquid designed to be mixed with water. The use of EUCOBAR will not affect the color of concrete.

Packaging

EUCOBAR is packaged in 55 gal (208 L) drums, 5 gal (18.9 L) pails and in cases of 1 gal (3.8 L) jugs (6 jugs per case).

Shelf Life

2 years in original, unopened containers

Coverage

Dilution Rate: 9:1 (Water:EUCOBAR)

EUCOBAR (after dilution) will cover approximately 200 to 400 ft^2/gal (5 to 10 m^2/L). Coverage will vary depending on concrete texture and wind conditions. For estimating purposes, 1 gal (3.8 L) of EUCOBAR concentrate will treat 2000 to 4000 ft^2 (186 to 372 m^2) of concrete surface area, but is highly dependent upon ambient conditions.

Directions for Use

Surface Preparation: EUCOBAR is applied directly to the surface of fresh concrete. No surface preparation is necessary.

Mixing: EUCOBAR is supplied as a concentrate and must be diluted with water at a 9:1 (water:EUCOBAR) ratio. Determine capacity of sprayer and divide by 10. Add this amount of EUCOBAR to the sprayer canister followed by 9 times that amount of water. For example, if 1 quart (0.95 L) of EUCOBAR is added, dilute with 9 quarts (8.5 L) of water. Mix or shake until thoroughly blended.

Placement: Apply using a tank type, hand pump sprayer capable of spraying in a fine mist. Use a slotted tip for the best spray. Spray EUCOBAR over the fresh concrete surface as soon as possible after floating. A pink, translucent sheen will appear as the surface is treated. On extreme drying conditions, additional applications may be given as needed. When used on floors with dry shake hardener applications, EUCOBAR may be used on the fresh concrete as well as between each shake application.

Curing & Sealing: Proper curing procedures are important to ensure the durability and quality of concrete. To prevent surface cracking, cure flatwork with a high solids cure and seal, such as SUPER AQUA-CURE VOX or REZ-SEAL.

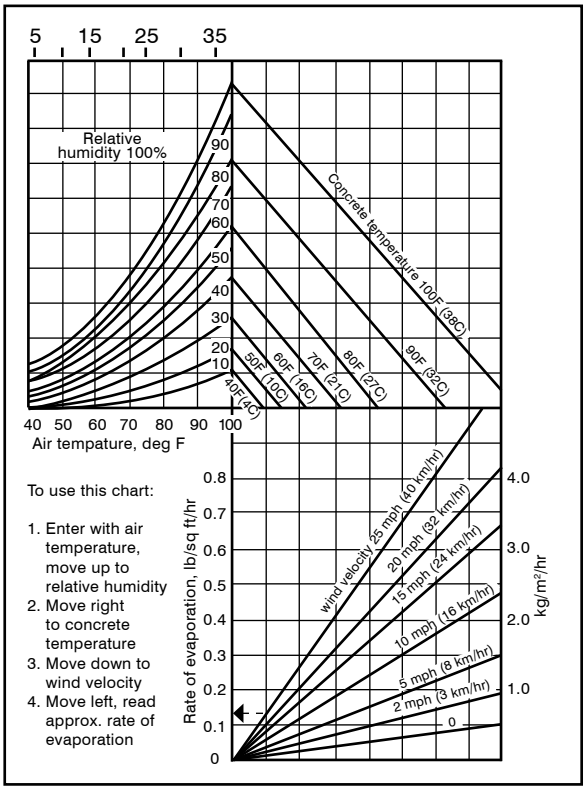

Fig. 2.1.5, ACI 305, Hot Weather Concreting

Clean Up

Clean spray equipment with soap and water.

Precautions/Limitations

- Use with proper dilution rate.
- This product is not a surface retarder for doing exposed aggregate concrete
- Do not use as a curing compound.
- Apply only as a fine spray.
- Do not allow to freeze.
- Do not work EUCOBAR into the surface of cast-in-place concrete or cementitious repair applications.
- In all cases, consult the Safety Data Sheet before use.

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EUCOBAR™ RTU

Ready-to-Use Evaporation Retardant and Finishing Aid

EUCLID CHEMICAL

Description

EUCOBAR RTU is a ready-to-use evaporation retardant and finishing aid for use on concrete surfaces of all types. When sprayed over fresh concrete, EUCOBAR RTU forms a monomolecular film that prevents rapid moisture loss from the concrete surface. EUCOBAR RTU is especially effective when concreting operations must be performed in direct sun, wind, high temperatures, or low relative humidity. EUCOBAR RTU is supplied pre-diluted, and does not require the addition of water before using.

Primary Applications

- Floors
- Pavements
- Concrete toppings
- Vertical/overhead repairs
- Dry shake floors including all SURFLEX and EUCO-PLATE formulations
- Specialty iron toppings
- Parking decks and ramps

Features/Benefits

- Holds in surface moisture on concrete floors, slabs, and repairs
- Helps prevent plastic shrinkage cracking
- Easy and economical to use
- Helps eliminate crusting caused by loss of surface moisture
- Water based and VOC compliant
- Excellent for both interior and exterior concrete projects
- Will not affect adhesion of curing compounds or other surface treatments
- May help contribute to LEED points

Technical Information

EUCOBAR RTU is a pre-diluted water based polymer.

Evaporation rate is a function of relative humidity, concrete temperature, air temperature and wind velocity. Plastic shrinkage cracking is a strong possibility when the rate of evaporation exceeds 0.2 lb/ft^2/hr (1.0 kg/m^2/hr). The chart on the back of this page (Fig. 2.1.5 of ACI 305, Hot Weather Concreting) is useful in determining the evaporation rate under a given set of jobsite conditions. Use EUCOBAR RTU when the above limit is exceeded.

Appearance: EUCOBAR RTU is a light pink liquid. The use of EUCOBAR RTU will not affect the color of concrete.

Packaging

EUCOBAR RTU is packaged in 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

One year when stored properly in original, unopened package.

Coverage

EUCOBAR RTU will cover approximately 200 to 400 ft^2/gal (5 to 10 m^2/L).

Coverage will vary depending on concrete texture and environmental (temperature, humidity, wind) conditions.

Directions for Use

Surface Preparation: EUCOBAR RTU is applied directly to the surface of fresh concrete. No surface preparation is necessary.

Mixing: Gently stir EUCOBAR RTU before using. No dilution with water is necessary.

Placement: Apply using a tank type, hand pump sprayer capable of spraying in a fine mist. Use a slotted tip for the best spray. Spray EUCOBAR RTU over the fresh concrete surface as soon as possible after floating. A pink, translucent sheen will appear as the surface is treated. On extreme drying conditions, additional applications may be given as needed. When used on floors with dry shake hardener applications, EUCOBAR RTU may be used on the fresh concrete as well as between each shake application.

Curing & Sealing: EUCOBAR RTU is not a curing compound. Proper curing procedures are important to ensure the durability and quality of concrete. To prevent surface cracking, cure flatwork with a high solids cure and seal or other industry-approved curing method.

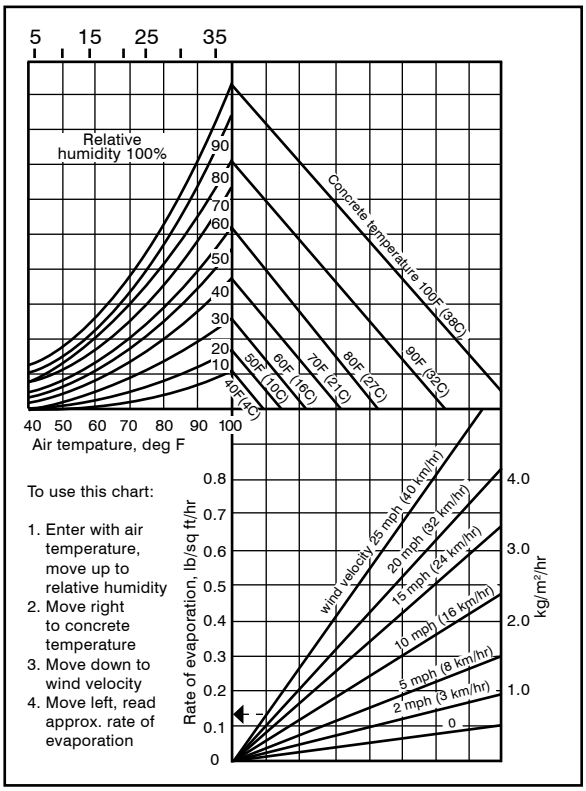

Fig. 2.1.5, ACI 305, Hot Weather Concreting

Clean Up

Clean spray equipment with soap and water.

Precautions/Limitations

- Do not use as a curing compound.
- Apply only as a fine spray.
- Do not allow to freeze.
- In all cases, consult the Safety Data Sheet before use.

Rev. 01.19

WARRANTY: The Euclid Chemical Company ("Euclid") solely and expressly warrants that its products shall be free from defects in materials and workmanship for one (1) year from the date of purchase. Unless authorized in writing by an officer of Euclid, no other representations or statements made by Euclid or its representatives, in writing or orally, shall alter this warranty. EUCLID MAKES NO WARRANTIES, IMPLIED OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR ORDINARY OR PARTICULAR PURPOSES OF ITS PRODUCTS AND EXCLUDES THE SAME. If any Euclid product fails to conform with this warranty, Euclid will replace the product at no cost to Buyer. Replacement of any product shall be the sole and exclusive remedy available and buyer shall have no claim for incidental or consequential damages. Any warranty claim must be made within one (1) year from the date of the claimed breach. Euclid does not authorize anyone on its behalf to make any written or oral statements which in any way alter Euclid's installation information or instructions in its product literature or on its packaging labels. Any installation of Euclid products which fails to conform with such installation information or instructions shall void this warranty. Product demonstrations, if any, are done for illustrative purposes only and do not constitute a warranty or warranty alteration of any kind. Buyer shall be solely responsible for determining the suitability of Euclid's products for the Buyer's intended purposes.

EUCO® THX

Powdered Admixture For High Strength, Non-Shrink Grout

EUCLID CHEMICAL

Description

EUCO THX is a powdered admixture which aids in the production of high strength, non-shrink grouts. It is ideally suited for grouting rock and soil anchors, micropiles, rockbolts and soil nails. High early strength grouts can be produced (5,000 psi) in 24 hours, allowing early stressing of anchors and loading of micropiles. High strength grouts are made using low water / cement ratio grouts. EUCO THX increases grout flowability at low water / cement ratios, allowing them to be pumped and placed with ease. Additional components of EUCO THX provide expansion of the grout to compensate for typical shrinkage. EUCO THX contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Rock and Soil Anchors
- Micropiles
- Soil Nails
- Rockbolts
- Grouting applications where high strength, non-shrink grouts are required

Features/Benefits

- Increases grout durability
- Reduces or eliminates grout shrinkage
- Enhances flowability of cement grouts
- Enables the development of higher strength at all ages
- Produces a thixotropic grout mix that reduces grout mobility once placed

Packaging

EUCO THX is available in 25 lb (11.4 kg) pails and 220 lbs (100 kg) poly drums.

Shelf Life

6 months in original, unopened container.

Specifications/Compliances

EUCO THX meets or exceeds the requirements of ASTM C 937.

Directions for Use

EUCO THX is generally dosed at rates ranging from 2 to 6 lbs/100lbs (2 to 6 kg/100 kg) of cementitious material. EUCO THX can be added to regular anchor grout mixes to improve flowability, increase grout strength and reduce grout shrinkage. To increase early and ultimate grout strength and further reduce or eliminate shrinkage, use 4 to 4 ½ gallons of water per 94 pound sack of cement and 5 to 6 pounds of EUCO THX. Grout strength and shrinkage will vary depending on cement used.

Euclid Chemical recommends testing grout mixes prior to production. When casting sample cubes always use brass molds to provide confinement against expansion during curing. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local Euclid sales representative.

Precautions/Limitation

- Test mixes may be required due to variations in local materials and conditions
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

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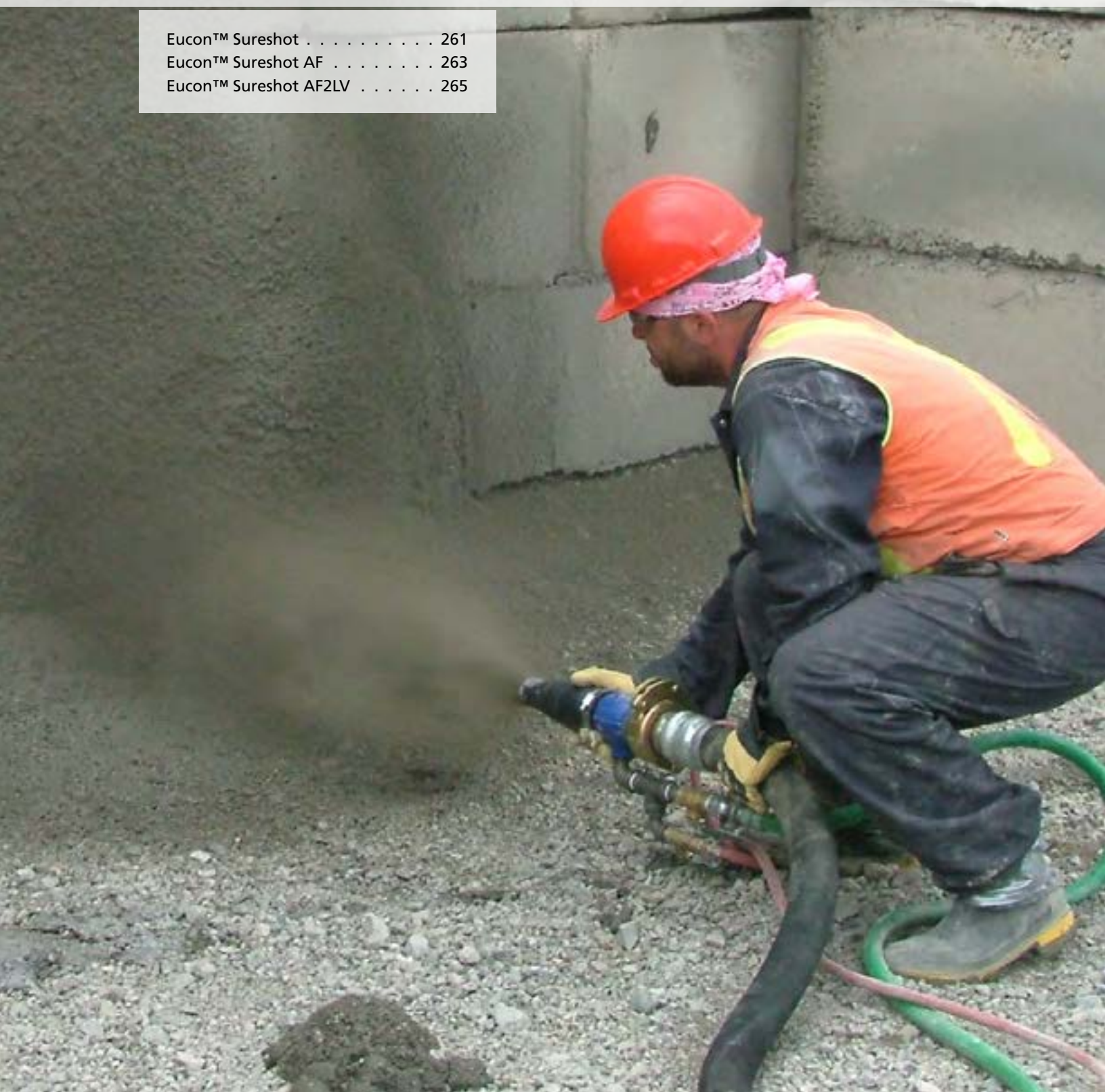
SHOTCRETE ACCELERATORS



EUCON™ SURESHOT

High Performance Shotcrete Coagulant

EUCLID CHEMICAL

Description

EUCON SURESHOT is a liquid, high performance accelerator. This admixture has been specifically engineered to give high early and ultimate compressive strengths in shotcrete applications. EUCON SURESHOT can be adjusted to give the optimum setting characteristics in different environments. EUCON SURESHOT contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Tunnel applications
- Mining applications
- Annulus grout acceleration
- Ground and slope stabilization

Features/Benefits

- Quick setting characteristics
- Powerful enough for multiple, thick sprayed linings
- Effective at low doses
- Improves early strength very quickly
- Reduce rebound, especially when shooting overhead

Technical Information

Physical Data

Color.....Clear

Specific Gravity.....1.34

pH.....11.5

Solubility in water.....100%

Chloride content.....Less than 0.1%

Performance Characteristics

Accelerator Dosage	Initial Set	Final Set
6%	5 min	15 - 20 min
4%	9 min	20 - 30 min
3%	Greater than 20 min	Greater than 45 min

24 Hour Strength

7 - 9 MPa.....1025 - 1310 psi

5 - 7 MPa.....730 - 1025 psi

Below 5 MPa.....Less than 730 psi

Specifications/Compliances

Eucon Sureshot meets the requirements of ASTM C 1141

Packaging

EUCON SURESHOT is available in 275 gal (1041 L) totes and 55 gal (208 L) drums.

Shelf Life

1 year in original, unopened package.

Dosage

EUCON SURESHOT is used at dosage rates ranging from 3% to 8% by weight of cement. Dosages will vary depending on desired effect, ambient conditions and mix materials used. Overdosing greater than 8% may lower ultimate compressive strengths.

Directions for Use

EUCON SURESHOT is added through the shotcrete nozzle. For best results The Euclid Chemical Company recommends dosing EUCON SURESHOT using either a progressive cavity or peristaltic pump. Ensure that pump and lines are cleaned thoroughly with a vinegar-water solution before using the same pump for dosing an alkali-free accelerator.

After using EUCON SURESHOT, clean equipment thoroughly with water. Failure to do so could cause pump blockage and/or breakdown.

Precautions/Limitations

EUCON SURESHOT should be stored above 40°F (4°C) and below 85°F (29°C).

- Do not use EUCON SURESHOT with any other manufacturer's accelerator.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ SURESHOT AF

High Performance Alkali-free Shotcrete Accelerator

EUCLID CHEMICAL

Description

EUCON SURESHOT AF is a liquid, high performance accelerator specifically engineered to give high early and ultimate compressive strengths in shotcrete applications. EUCON SURESHOT AF can be adjusted to give the optimum setting characteristics in different environments. EUCON SURESHOT AF contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Tunnel applications
- Mining applications
- Ground and slope stabilization

Features/Benefits

- Quick setting characteristics
- Powerful enough for multiple, thick sprayed linings
- Effective at low doses
- Improves early strength to achieve structural values rapidly

Technical Information

Physical Data

Color.....Beige

Specific Gravity.....1.43

pH (1:1 water sol.).....2.2 - 2.7

Thermal stability.....40 - 85°F (4 - 29°C)

Chloride content.....Less than 0.1%

Performance Characteristics

Accelerator Dosage	Initial Set	Final Set
6%	2 min	6 - 8 min
4%	5 min	8 - 12 min
3%	Greater than 10 min	Greater than 15 min

24 Hr Strength

18 - 20 MPa.....2600 - 2900 psi

12 - 15 MPa.....1750 - 2175 psi

Below 10 MPa..... Less than 1450 psi

Specifications/Compliances

Eucon Sureshot AF meets the requirements of ASTM C 1141

Packaging

EUCON SURESHOT AF liquid is available in 275 gal (1041 L) totes and 55 gal (208 L) drums.

Shelf Life

1 year in original, unopened container.

Dosage

EUCON SURESHOT AF is generally dosed at rates ranging from 2.5% to 8% by weight of cement. Dosages will vary depending on desired acceleration, ambient conditions and cement used. Use of alkali-free accelerators to attain very early initial set times will cause lower 28 day strengths to occur. For this reason, it is important to determine the lowest practical dose rate to attain desired acceleration.

Directions for Use

EUCON SURESHOT AF is added through the shotcrete nozzle. For best results The Euclid Chemical company recommends dosing EUCON SURESHOT AF using a peristaltic or progressive cavity type pump. Do not use diaphragm, piston, ball and seat valve pumps, pressure tanks or gear pumps.

After using EUCON SURESHOT AF, clean equipment thoroughly with water. Failure to do so could cause pump blockage and/or breakdown.

Precautions/Limitations

- Store EUCON SURESHOT AF in plastic or stainless steel tanks that are sealed to avoid contact between air and the accelerator. DO NOT STORE IN MILD STEEL CONTAINERS.
- Must be stored at minimum temperature of 40 °F and maximum temperature of 85 °F (with an optimum temperature for storage and performance at 70 °F).
- Mechanically re-circulate product before using and periodically when left in storage for extended periods.
- Do not use a filter on the suction hose of the pump, as it may cause obstructions.
- Do not use EUCON SURESHOT AF with any other manufacturer's accelerator.
- In all cases, consult the Safety Data Sheet before use.

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EUCON™ SURESHOT AF2LV

High Performance Alkali-Free Shotcrete Accelerator

EUCLID CHEMICAL

Description

EUCON SURESHOT AF2LV is a liquid, high performance accelerator specifically engineered to give high early and ultimate compressive strengths in shotcrete applications. EUCON SURESHOT AF2LV can be adjusted to give the optimum setting characteristics in different environments. Even having a low viscosity, EUCON SURESHOT AF2LV integrates easily into the shotcrete stream. EUCON SURESHOT AF2LV contains no added chlorides or chemicals known to promote the corrosion of steel.

Primary Applications

- Tunnel applications
- Mining applications
- Ground and slope stabilization

Features/Benefits

- Quick setting characteristics
- Powerful enough for multiple, thick sprayed linings
- Improves early strength to achieve structural values rapidly

Technical Information

Physical Data

Color.....Clear to Opaque Brown

Specific Gravity.....1.32

pH (1:1 water sol.).....2.2 - 2.7

Thermal stability.....40 - 85°F (4 - 29°C)

Chloride content.....Less than 0.1%

Performance Characteristics

Accelerator Dosage	Initial Set	Final Set
10%	3 min	8 - 12 min
8%	7 min	12 - 17 min
6%	Greater than 14 min	Greater than 22 min

24 Hr Strength

18-20 MPa.....2600 - 2900 psi

12-15 MPa.....1750 - 2175 psi

Below 10 MPa.....Less than 1450 psi

Specifications/Compliances

Eucon Sureshot AF2LV meets the requirements of ASTM C 1141

Packaging

EUCON SURESHOT AF2LV liquid is available in 275 gal (1041 L) totes, 55 gal (208 L) drums and bulk.

Shelf Life

1 year in original, unopened container.

Dosage

EUCON SURESHOT AF2LV is generally dosed at rates ranging from 5% to 12% by weight of cement. Dosages will vary depending on desired acceleration, ambient conditions and cement used. Overdosing greater than 15% may lower ultimate compressive strengths.

Directions for Use

EUCON SURESHOT AF2LV is added through the shotcrete nozzle. For best results The Euclid Chemical company recommends dosing EUCON SURESHOT AF2LV using a peristaltic type pump or rotor-stator pump. Do not use diaphragm, piston, ball and seat valve pumps, pressure tanks or gear pumps.

After using EUCON SURESHOT AF2LV clean equipment thoroughly with water. Failure to do so could cause pump blockage and/or breakdown.

Precautions/Limitations

- Store EUCON SURESHOT AF2LV in plastic or stainless steel tanks only.
- Do not use EUCON SURESHOT AF2LV with any other manufacturer's accelerator.
- Must be stored at minimum temperature of 40 °F and maximum temperature of 85 °F (with an optimum temperature for storage and performance at 70 °F).
- In all cases, consult the Safety Data Sheet before use.

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CONCRETE INDUSTRY REFERENCE INFO

MEASUREMENT CONVERSIONS

If You Have	Multiply By	To Find
inches	25.4	millimeters
inches	2.54	centimeters
inches	0.0254	meters
in^2	6,642	cm^2
in^2	0.00694	ft^2
in^3	.554	fl oz
in^3	0.01639	liters
in^3	0.004329	gallons US
in^3	16.39	cm^3
in^3	0.00058	ft^3
ft^2	144	in^2
ft^2	9,729.03	cm^2
ft^2/gal	0.02454	m^2/liter
ft^3	1,728	in^3
ft^3	0.02832	m^3
ft^3	0.037	yd^3
yard	0.9144	meter
yd^2	0.8361	m^2
yd^3	27	ft^3
yd^3	0.7646	m^3
acres	43,560	ft^2
floz	1,805	in^3
floz	0.03215	quart
floz	0.00781	gallons US
floz	0.02957	liter
floz/cwt	0.652	ml/kg
floz/cwt	65.2	ml/100 kg
floz/cwt	0.03868	l/m^3
quart	32	fl oz
quart	0.25	gallons US
gallon US	231	in^3
gallon US	4	quarts
gallon US	128	fl oz
gallon US	3.785	liter
gal/yd^3	4.951	liter/m^3
lb	0.0005	ton US
lb	453.5924	g
lb	0.4536	kg
lb/ft^2	4.88	kg/m
lb/ft^3	16.02	kg/m^3
lb/yd^3	0.5933	kg/m^3
psi	0.006895	Mpa
w/c ratio	11.3	gal water/ bag of cement
gal water/ bag of cement	0.0885	w/c ratio

If You Have	Multiply By	To Find
g	0.0022	lbs
g	0.001	kg
liters	61.024	in^3
mils	0.001	inches
millimeters	0.0394	inches
centimeters	0.3937	inches
cm^2	0.155	in^2
meters	39.37	inches
cm^2	0.155	in^2
cm^3	0.06102	in^3
cm^2	0.00108	ft^2
m^2/liter	40.75	ft^2/gal
m^3	35.314	ft^3
meter	1.0936	yard
m^2	1.196	yd^2
m^3	1.308	yd^3
liter	33.8141	floz
ml/kg	1.533	floz/cwt
ml/100kg	0.0153	floz/cwt
l/m^3	25.85	floz/yd^3
liter	0.264	gallon US
liter/m^3	0.202	gal/yd^3
g	0.0022	lb
kg	2.205	lb
kg/m^3	0.0624	lb/ft^3
kg/m^3	1.685	lb/yd^3
kg/m^3	0.2048	lb/ft^2
kg	1,000	g
Mpa	145	psi

TEMPERATURE CONVERSIONS

°C = (°F-32) / 1.8
°F = (1.8 x °C) + 32

32°F = 0°C
212°F = 100°C

WATER

Water weighs 8.345 lbs/gallon.
One cubic foot weighs 62.45 lbs.
One lb = 27.7 in^3 = 0.1198 gallons.

SAND

One yd^3 of bulk sand weighs about 2,700 lbs.
One ft^3 of bulk sand weighs about 100 lbs.
One gallon of bulk sand weighs about 13-14 lbs.
The specific gravity of sand is approximately 2.6.

FLOOR SYSTEM THICKNESS

Inches	Mils	Millimeters
2	2000	50.8
1-1/2	1500	38.1
1	1000	25.4
3/4	750	19.05
1/2	500	12.7
3/8	375	9.52
5/16	312.5	7.94
1/4	250	6.35
3/16	187.5	4.76
1/8	125	3.175
3/32	93.8	2.38
1/16	62.5	1.59

DECIMAL EQUIVALENTS OF COMMON MEASUREMENTS

1/16	=	.0625	1/2	=	.5
1/8	=	.125	9/16	=	.5625
3/16	=	.1875	5/8	=	.625
1/4	=	.25	11/16	=	.6875
5/16	=	.3125	3/4	=	.75
3/8	=	.375	13/16	=	.8125
7/16	=	.4375	7/8	=	.875
			15/16	=	.9375

VOLUME AND AREA FORMULAS

Area of a square or rectangle = Length x Width
Circumference of a circle = Diameter x 3.14
Area of a circle = Radius x Radius x 3.14
Absolute volume = Specific Gravity x 62.4
Surface area of cylinder = Diameter x Length x 3.14

ASTM C-494 CLASSIFICATIONS

TYPE A	Water Reducing
TYPE B	Retarding
TYPE C	Accelerating
TYPE D	Water Reducing and Retarding
TYPE E	Water Reducing and Accelerating
TYPE F	High Range Water Reducing
TYPE G	High Range Water Reducing and Retarding
TYPE S	Specific Performance

COVERAGE YIELD OF ONE YARD OF CONCRETE

Thickness (inches)	Square Feet	Thickness (inches)	Square Feet
1	324	6	54
2	162	7	46
3	108	8	40
4	81	9	36
5	65	10	32

$ft^2/yd = 324/depth\ (inches)$

Thickness (millimeters)	Square Meters	Thickness (millimeters)	Square Meters
25	40	125	8
50	20	150	6.67
75	13.33	175	5.71
100	10	200	5

COLD WEATHER CONCRETING TIPS

The use of accelerating admixtures has extended the construction season through the winter in North America. Specific precautions and curing methods are recommended by The Euclid Chemical Company to ensure years of durability from your concrete.

Euclid Chemical offers the industry several chloride and non-chloride accelerators and a freeze-resistant accelerator that will keep your construction project on schedule even in 20°F (-6.7°C) temperatures.

Concrete will gain very little strength in cooler weather. If concrete freezes before reaching 500 psi (3.5 Mpa), the hardened properties will be compromised. Concrete can lose up to 50% of its potential strength if precautions are not taken to ensure cement hydration continues.

The use of Type III portland cement will reduce the time required for the concrete to reach initial set 500 psi (3.5 Mpa). Using Type III cement with an accelerating admixture is a recommended but not necessary practice in cooler temperatures. Depending on the project requirements, choose a calcium chloride or non-chloride accelerator. Non-chloride accelerators are recommended for concrete that will come in contact with steel.

1. Always attend a pre-job conference and discuss the plan of action for cold weather concreting. Include a local Euclid Chemical sales professional for technical expertise.
2. In cooler weather, it is not recommended to use fly ash as a cement replacement. Higher cement contents will be required to help generate the heat necessary for concrete to cure. If the concrete temperature drops to 40°F (4.4°C), hydration virtually stops.
3. Use warm water and heat your aggregates to get the concrete temperature as high as you can. This will help the concrete reach initial set and expedite the finishing process.
4. Protect the concrete from plastic shrinkage cracking with enclosures and polypropylene fibers. If there are extremely windy conditions, protect the surface from drying too quick and block the wind. Accelerators tend to “occupy” the water in concrete and reduce bleed. If the bleed water does not keep up with evaporation, tensile stresses on the surface of concrete will create plastic shrinkage cracking.Fibers will minimize the plastic shrinkage cracking by up to 88%.
5. Discuss curing requirements with your local Euclid Chemical sales professional. The use of heating blankets is highly recommended. Any heater burning a fossil fuel will produce carbon dioxide. When carbon dioxide combines with calcium hydroxide on the surface of fresh concrete, it will interfere with cement hydration causing carbonation.
6. It is not recommended to pour concrete if temperatures drop below 20°F (-6.7°C) for a significant period of time.

HOT WEATHER CONCRETING TIPS

Extreme temperatures, whether hot or cold, can cause serious problems with the strength development and durability of concrete. Understanding how concrete reacts to extreme weather conditions and how to combat nature will enable concrete producers to ensure durable, high quality product for their customers.

The Euclid Chemical Company recommends keeping concrete temperatures below 90°F (32°C) to prevent problems associated with hot weather. Keeping your aggregate piles and water as cool as possible is the easiest way to lower concrete temperatures. The following suggestions will help make your hot weather concreting successful:

1. Discuss hot weather concreting procedures during the preconstruction conference.
2. Contact your local Euclid Chemical sales professional for appropriate hot weather admixtures such as retarders, ASTM Type B and D water reducers and superplasticizers.
3. Expedite the discharge of concrete by providing sufficient slump through the use of admixtures. Remember, adding water will compromise the strength and durability by lowering the hardened properties of the concrete.
4. Use polypropylene fibers to control plastic shrinkage cracking. This will prevent surface cracking during windy, hot conditions.
5. Never use water on the surface of the concrete to aid in finishing. The Euclid Chemical Company offers Eucobar, evaporation retardant and finishing aid. Using water to aid in finishing will increase the water to cement ratio on the surface of concrete, which will lower compressive strengths and could cause dusting.
6. If needed, pour concrete during cooler weather, such as nighttime.
7. Use a curing agent manufactured by The Euclid Chemical Company, which meets ASTM C-309. Discuss curing options with a Euclid sales professional.

CONSTRUCTION PRODUCTS

BONDING AGENTS AND ADHESIVES
- Acrylic additives
- Anti-corrosion coating
- Dowel bar adhesives
- Injection resins
- Polyvinyl acetate primers
- Segmental bridge adhesives
- Structural concrete epoxy binders
- Styrene butadiene copolymers

CURING AND CURING & SEALING COMPOUNDS
- Dissipating and removable curing compounds
- Exempt solvent cure and seals
- Sealers for decorative concrete
- Solvent & water based cure and seals

GROUTING PRODUCTS
- Dry pack cementitious
- Epoxy grouts
- High flow cementitious
- Metallic aggregate grouts

JOINT FILLERS AND SEALANTS
- Epoxy control joint fillers
- Non-sag and self-leveling polyurethanes
- Pick-proof sealants
- Polysulfide sealants
- Polyurea joint fillers and repair products

MISCELLANEOUS PRODUCTS
- Color packs for solvent-based materials
- Concrete cleaners
- Evaporation retarders
- Form release agents
- Rebar coatings

WATERPROOFING AND DAMPPROOFING
- Cementitious coatings
- Emulsified asphalt dampproofing
- Hydrophilic urethane grout
- Hydrophobic urethane grouts
- Migratory crystalline systems
- NSF approved coatings
- VANDEX waterproofing systems

CONCRETE REPAIR SYSTEMS
- Cathodic protection systems
- Epoxy based mortars
- Fast setting mortars
- Horizontal, vertical and underwater products
- NSF approved repair mortars
- Self-leveling toppings and underlayments
- Urethane crack menders

DRY SHAKE FLOOR HARDENERS
- Light reflective flooring
- Metallic aggregate
- Natural aggregate
- Non-oxidizing metallic aggregate

HIGH PERFORMANCE COATINGS
- Chemical resistant amine and novolac epoxies
- Elastomeric coatings
- Epoxy and polyurethane traffic deck systems
- High build epoxy floor systems
- Industrial tank liners
- Penetrating epoxy deck healers
- UV resistant urethane topcoats
- Water-based acrylics

MASONRY ADMIXTURES
- Cold weather accelerators
- Integral water repellents

PENETRATING SEALERS AND LIQUID DENSIFIERS
- Magnesium silicofluoride dustproofers
- Penetrating epoxy sealers
- Silane and siloxane water repellents
- Silicate, sodium and lithium densifiers

CONCRETE & MASONRY ADMIXTURE AND FIBER PRODUCTS

ACCELERATORS
- Chloride
- Non-Chloride

RETARDERS

AIR ENTRAINERS

WATER REDUCERS

MID-RANGE WATER REDUCERS

HIGH RANGE WATER REDUCERS
- Powdered Admixtures

MASONRY / MCP PRODUCTS
- Plasticizing
- Integral Water Repellency
- Efflorescence Control

MORTAR ADMIXTURE PRODUCTS

INTEGRAL COLORS

FIBER PRODUCTS
- Micro Synthetic
- Macro Synthetic
- Steel

SPECIALTY PRODUCTS
- Air Detrainers
- ASR Control
- Corrosion Inhibitors
- Flowable Fill
- Hydration Stabilizers
- Micro Silica
- Rheology Modifiers
- Shrinkage Compensation
- Shrinkage Reduction
- Waterproofing
- Workability Extending

MISCELLANEOUS PRODUCTS
- Form Release Agents
- Surface and Evaporation Retardants
- Equipment Cleaners
- Dust Control

INCRETE DECORATIVE CONCRETE PRODUCTS

PLATFORM STAMPING TOOLS AND FORMLINERS
- Rigids and Liners
- Texture Skins
- Edge Forms
- Architectural Wall Formliners
- Custom Logos and Tools

ACCESSORIES
- Textured Rollers
- Joint Strips
- Vine and Rose Borders

CONCRETE COLOR
- Hardener
- Releases
- Integral Powder
- Integral Liquid
- Integral Granular

STAINS AND DYES
- Stain-Crete (Acid Base)
- Stone-Essence (Water Base)
- Vibra-Stain (Concentrated Dye)
- Concrete Stain (Stain Sealer)

FINISHING AIDS
- Increte Delay/Trowel Glide
- Retarder

SEALERS AND PROTECTIVE COATINGS
- Water & Solvent Based
- Cure and Seals
- VOC Compliant
- Specialty Coatings
- Epoxy
- Urethane
- Wax

STAMPED OVERLAY PRODUCTS
- Thin-Crete
- Bond-Crete
- Antiquing Agent
- Liquid Release

SPRAYED OVERLAY PRODUCTS
- Spray-Deck/Texture-Crete Grout
- Texture-Crete
- Liquid Dispersion
- Single Component Grout
- Spray-Deck Resin

OVERLAY & CUSTOM ADHESIVE STENCILS
- Pattern Stencils
- Vinyl (Staining) Stencils
- Sandblast Stencils

SELF-LEVELING / MICRO-TOPPING / VERTICAL OVERLAY
- Level Top SP
- Micro-Crete
- Thin-Crete Vertical
- Single Component Grout

SPECIALTY CLEANERS
- Grease-A-Way
- Uni-Stripp
- Solv-Kleen

MISCELLANEOUS PRODUCTS
- Densifier
- Slip-Resistant Additives
- Epoxy Vinyl Chip System
- Metallic Effect Epoxy System
- Quartz Epoxy System
- Sure-Etch Exposed Aggregate
- Matte Add

MINING & UNDERGROUND CONSTRUCTION PRODUCTS

DRY SHOTCRETE
- Euco Diamond Shot
- Eucoshot series
  - silica fume modified
  - latex modified
  - fiber reinforced
- Accelerators
- Binder mixes

GROUT
- Cable grout
- Cementitious grout
- Epoxy grout
- Tremie grout

ANNULUS GROUTING PRODUCTS
- Anti-bleed and segregation admixtures
- Accelerators
- Water reducers
- Micro-silica
- Retarders
- Hydration control

BACKFILL AND ANNULUS GROUTS
- Water reducers
- Set retarders
- Accelerators
- Superplasticizers

FORM RELEASE AND FINISHING
- Evaporation retardants
- Bio-degradable form release

WET SHOTCRETE
- Accelerators
  - alkali free
  - high performance
- Retarders and set stabilizers
- Superplasticizers
- Lubricating admixtures
- Pumping aids

ROCK SUPPORT
- Cartridges

PATCHING PRODUCTS
- Overhead
- Rapid Setting
- Latex modified

MISCELLANEOUS PRODUCTS
- Micro-silica
- Fibers
  - Micro Synthetic
  - Macro Synthetic
  - Steel
- Dust control
- Surface hardeners
- Equipment cleaners
- Anti-corrosion coatings
- Urethane sealants

EUCLID CHEMICAL

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