



ARCHITECTURAL CAST STONE

2775 Norton Creek Drive West Chicago, IL 60185 Phone: 630.377.4800 Fax: 630.377.8282

CSI, APA and IDOT Certified www.ACSGreenStone.com

February 28, 2014

RE: Qualifications/Certifications

To Whom It May Concern:

Architectural Cast Stone has been fabricating top quality **Architectural Precast Concrete (3450)** and **Cast Stone (4720)** since 1989. We serve our customer's precast and cast stone needs in the Midwest, South and East Coast markets. Additionally we manufacture **cast stone masonry veneer (4220)** and our unit masonry can be an exact match to our custom precast or cast stone products. For LEED intended projects our **proprietary green mix design "ACS Greenstone 30 & 40"** has 30% and 40% post-consumer recycled content respectively. All of our product types are available in our Greenstone mixes.

ACS maintains the following **plant certifications**:

- **APA – Architectural Precast Association (compliant with ACI 318(m) and PCI MNL 117)**
(also APA certified batch plant operators and field patching personnel)
- **CSI – Cast Stone Institute (testing according ASTM C1364)**
- **IDOT A5 – Structural Architectural Bridge Members**

Maintaining these certifications, ensures clients that our quality products are manufactured to the highest standards in the industry. In situations where PCI certification is specified, APA is currently recognized in the industry as an equal as listed in the 1997 AIA Master Spec and therefore will allow you to meet specifications in either situation.

For further information regarding the APA, please contact the APA at: APA, 3710 Winkler Rd., Suite 8, Fort Myers, FL 33919, Phone: 239-454-6989 or at their website: www.archprecast.org.

For further information regarding the CSI, please contact the CSI at: CSI, 813 Chestnut St., P.O. Box 68, Lebanon, PA 17042, Phone: 717-272-3744 or at their website: www.caststone.org.

Please contact your sales representative for further information.

Sincerely,

Architectural Cast Stone



This Is To Certify That
Architectural Cast Stone, LLC


is in compliance with the requirements of plant certification, thus demonstrating ability to produce Architectural Precast products of exemplary quality; therefore, this company is hereby recognized as an



and is entitled to all honors, privileges, and qualifications extended to those recognized within the
Architectural Precast Association Plant Certification Program
Certification is contingent upon satisfactory completion of periodic inspections and compliance
is not affirmed past the expiration date of:


March 31st 2016

Approved this Thirtieth Day of September 2015



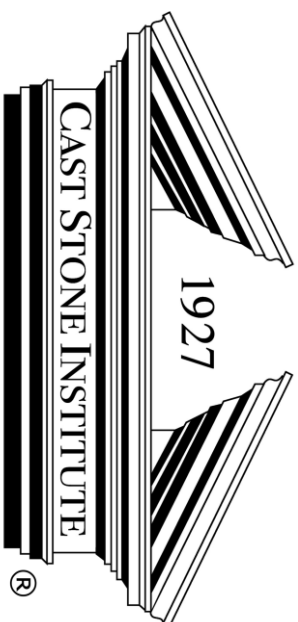
Dino Diana, Committee Chairman





Fred L. McGee, President
Construction Certification Institute





Certificate of Excellence
Presented To

Architectural Cast Stone

*This certifies that the company has met the strict criteria for plant certification
and adheres to the high standards for quality as set forth by the Institute.*

Valid Through December 31, 2015

Jesse Hawthorne, President



CONCRETE STANDARDS

February 28, 2014

The specifications listed below are met by all mix designs manufactured by Architectural Cast Stone. These test procedures were developed using ASTM/PCI MNL-117 and PCI MNL 130 methods. The test results are kept for (2) years and are available upon customer request. Additional tests are performed on a periodic basis to insure the quality of our precast is maintained.

Our suppliers are also required to provide us with test results from the raw materials that have been provided to us. ASTM/PCI MNL-117/IDOT/CDOT requirements are used as a guideline upon accepting raw materials.

SECTION 3450- PRECAST ARCHITECTURAL CONCRETE

(Compliant with ACI 318(M), PCI MNL-117)

AIR	6-8 % (Severe Weather) (ACI-533R)
WATER ABSORPTION	6 % Max. (ASTM C-642, By Weight)
STRENGTH	5000 PSI Min. (ASTM C-39, 28 Day)
SLUMP	2 ½ - 3 inches
FREEZE-THAW	<5% (ASTM C-666)
CEMENT	Per ASTM C-150

SECTION 4720- CAST STONE

(Compliant with ASTM-1364)

AIR	6-8 % (Severe Weather) (ASTM C-231)
WATER ABSORPTION	6 % Max. (ASTM C-1195, By Weight)
STRENGTH	6500 PSI Min. (ASTM C-1194, 28 Day)
SLUMP	2 ½ - 3 inches
FREEZE-THAW	<5% (ASTM C-666)
LINEAR SHRINKAGE	0.065% Max. (ASTM C-426)

SECTION 3455- GLASS FIBER REINFORCED CONCRETE (GFRC) UNITS

(Compliant with PCI MNL 130 the manual for Quality Control for Glass Fiber Reinforced Concrete Products)

CEMENT	ASTM C 150 type I or type II
WATER	Potable (> .35 water to cement ratio).
AGGREGATES	Fine sand (< # 16 sieve)
ACRYLIC COPOLYMER	Compliance with Appendix G of PCI MNL 130
COLOR	If applicable, conforming to ASTM C979
GLASS FIBER	Compliant to PCI "Recommended practices for Glass Fiber Reinforced Concrete Products"

GRANITE CAST™ - CEMENTATIOUS BASED CAST GRANITE

AIR	4 – 8% (Severe Weather – ASTM C-173
WATER ABSORPTION	<6% (ASTM C-1195, by Weight)
STRENGTH	PSI Min. (ASTM C-1194, 28 Day)
FREEZE THAW	<5% (ASTM C-666)
CEMENT	Per ASTM C-150 Type I or Type II
COLOR	If applicable, conforming to ASTM C-979
WATER	Potable (< .40 Water to Cement)
LINEAR SHRINKAGE	0.065% Max. (ASTM C-666)



SLUMP TEST PROCEDURES

Test #1

1. A 12 inch cone, that has been cleaned and pre-wetted, and a tamping rod should be used for testing. The cone should be steel no thinner than #16 gauge (BWG) with an 8 inch diameter base. The rod shall be 5/8 inches in diameter, 24 inches long and have a rounded hemispherical tip. (*See ASTM C143 for details*).
2. The slump cone should be placed on a clean, moist, nonabsorbent, flat (rigid) surface and be clamped to hold in place.
3. Note- the entire time taken to perform the next steps should take 2 ½ minutes, from the point of filling the cone to lifting the cone.
4. Filling of the cone will be done in 3 layers, using a scoop. Each layer should be rodded, with the rounded end of the tamping rod, 25 times and the strokes should be uniformly distributed over the cross section of each layer. Layer one will be at 2 5/8 inches of the cone (mold), layer two will be at 6 ½ inches and layer three will be filled above the top of the cone.
5. Level/screed off the top of the cone by rolling the tamping rod over the top of the cone and clear away the material around the base of the cone.
6. Begin lifting the cone in a slow, steady, upward motion, taking approximately 5 seconds.
7. Place a flat/straight object (tamping rod) on the top of the cone.
8. Using a tape measure, check the distance between the top of the cone and the top of the concrete just released.
9. The measurement should be between 2 ½ to 3 inches in order to pass. One to 1 ½ gallons of water can be added per yard to increase the slump an additional inch. If water is added, at least six minutes of mixing should be done ensuring the uniform distribution of the water throughout the batch. CAUTION – adding too much water reduces the strength of the concrete.
10. To reduce the slump, please see your quality control inspector.
11. Record your results on the QC mixing Department Test Sheet.

NOTE – If there is shearing or falling away of the concrete from specimen, the test shall be redone. If this happens twice, the concrete is probably lacking the necessary plasticity and cohesiveness for the slump test to be applicable.

The above methods meet the ASTM requirements or are in addition to what is discussed in the ASTM.



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AIR ENTRAINMENT TEST PROCEDURES

Test #2 & Test #4

1. After Slump has passed and Color has been visually inspected the Air Entrainment test can be done. The concrete should have mixed for 6 minutes prior to this test or retest.
2. The air test equipment used by ACS is recognized as Meter Type B by (ASTM C231) ACS refers to this as *Pressure Pot Bucket*.
3. Clean the bowl with water and wipe inside and edges before proceeding with test.
4. Dampen the interior of the measuring bowl and place it on a flat, level, firm surface.
5. Place the concrete in the measuring bowl in 3 equal layers. Rod each layer 25 times evenly distributing the strokes over the cross section. Use the tamping rod that is 5/8 inches in diameter and 24 inches long. (Meets ASTM C192). After each layer is rodded, tap the sides of the measure smartly 10-15 times with the mallet to close any voids left by the tamping rod and to release any large bubbles. Rod the first layer throughout its depth, rod the next two layers so each layer penetrates its previous layer about 1 inch.
6. After consolidation of the concrete, strike off the top surface by sliding the strike-off bar across the top rim of the measuring bowl with a sawing motion until the bowl is just level full. Removing 1/8 inch of concrete is ideal.
7. Clean the rim of the bowl so a pressure light clamp can be achieved.
8. Close the air chamber between the measuring bowl and open both petcocks on the holes through the cover.
9. Using a rubber syringe, inject water through one petcock until the water emerges from the opposite petcock.
10. Jar the meter gently until the air is expelled from this same petcock.
11. Close the airbleeder valve on the air chamber until the gage hand is on the initial pressure line. Allow a few seconds for the compressed air to cool to normal temperature, then stabilize the gage hand at the initial pressure line by pumping or bleeding off air as necessary, tapping the gage lightly by hand.
12. Close both petcocks on the holes through the cover.
13. Open the air valve between the air chamber and the measuring bowl.
14. Tap the sides of the measuring bowl smartly with the mallet to relieve local restraints. Lightly tap the pressure gage by hand to stabilize the gage hand.
15. Read the percentage of air on the dial and record on the QC Mixing Tests Sheet.
16. If you fail to close the main air valve before releasing the pressure from either the container or the air chamber, error will occur in measurement. Water will enter the air chamber and it must be released through the bleeder valve followed by several strokes of the pump to blow out the traces of water. Release the pressure by opening the petcocks.
17. If you are not within specifications please see your Quality Control Inspector. ACS requires a reading between 6 & 8. If at any time additional material is added to the batch for a retest then the slump will need to be tested again too.

*Air percentage is based on the concrete being exposed to severe weather conditions



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CYLINDER TEST PROCEDURES

Test #3

1. Cylinder molds shall be kept clean and free from deformations. Any molds that become distorted or do not meet dimension specifications should be discarded. *According to (PCI 6.1.4).* For cleaning, pre-drill a 1/16 hole in the center of cylinder mold base, cover hole with tape, oil cylinder very lightly, oil film should be allowed to dry prior to placing concrete. *(ASTM C31 or C470 for cylinder mold specs)*
2. Cylinders shall be made as near as possible to the location where they will be cured and shall not be disturbed in any way from ½ hour after casting until they are either 24 hours old or ready to be tested. Meets *(PCI 6.1.5)*. The ACS office per the customer specifications will provide the cure type. Cure type can be either box or air; ACS will be using box curing as a standard cure type.
3. Fill cylinder 1/3 full – rod each layer with the tamping rod (using the rounded end), 25 times. Distribute the strokes uniformly over the cross section of the mold and for each upper layer allow the rod to penetrate about ½ inch into the underlying layer. After each layer is rodded, tap the outsides of the mold lightly 10-15 times with a mallet to close any holes left by rodding and to release any large air bubbles that may have been trapped. Use your hand for lighter gauged molds. The tamping rod should be 5/8inch diameter, 24 inches long and have a rounded hemispherical tip. *Meets (ASTM C192)*
4. Strike off mold using tamping rod.
5. Place cylinder wire tag in top of the cylinder. The tag will be prewritten with the lot number, mix design number, date and the cylinder break days. The person who makes the cylinder will be responsible for marking the time on the tag, if the cylinder is scheduled for one break.
6. The cylinder break days are 7 14 and 28 days. If other than 7, 14 and 28 days it will be written on the "QC MIXING DEPARTMENT" Sheet. For sample mixes a 1-day break shall be done prior to submitting the sample to the customer. 1-day breaks shall be done 24 hours after casting +/- 30 minutes.
7. After the 24 +/- 8 hours of casting the sample should be stripped from the cylinder mold. The stripped mold should be placed back into the curing box @73.40F for 5 more days.
8. Cylinder shall be tested daily by referencing the testing schedule (see attached). *ACS will not be capping according to (ASTM C617).*
9. The cylinders staying at ACS can be stripped and stored for 28 days in moist conditions @ 73.40F *see (ASTM C1952)*. If the test results come back okay, then the cylinders will be moved outside. The single untested cylinder should be kept until the job is paid in full.

NOTE: Vibration methods are acceptable to the ASTM but will not be used by ACS. ACS will only be using the tamping rod method.



AGGREGATE TESTING PROCEDURES FOR WATER PERCENTAGE

1. Using a PVC pipe, push pipe into the center of the aggregate pile.
2. Pull one 8oz. sample per fine or coarse aggregate.
3. Weigh sample on a scale located on Mixer's desk.
4. Record the aggregate type, weight and date on the "Aggregate Testing" form. If using multiple suppliers for the aggregate, record the vendor name.
5. Turn stove/heater on 'High'.
6. Place one sample in a steel pan and heat for (5) minutes, stirring constantly.
7. Pour sample into another steel pan for cooling.
8. When cool, weigh sample again (with coarse aggregates there may be no change).
9. Record weight on the "Aggregate Testing" form.
10. Subtract the new weight from the old weight and record the difference.
11. Divide the difference by the weight after drying.
12. Record the number; this is the percent of water.
13. Place "Aggregate Testing" form in front page of the certification book, located in the ACS office.

PRODUCT DATA SHEET

Division 3-Concrete Division 4-Masonry



PRODUCT NAME

- Lehigh White Portland Cement Type I
- Lehigh White Portland Cement Type II/V
- Lehigh High Early Strength White Portland Cement, Type III
- Lehigh White Portland Cement - Water Repellent Added
- Lehigh White Masonry Cement, Type N
- Lehigh White Masonry Cement, Type S

MANUFACTURER

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White Cement Division
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(610) 366-4600
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PRODUCT DESCRIPTION

Portland cement is the most widely used construction material in the world. Since 1897, the name Lehigh has meant quality in the cement industry. Lehigh White Cement has a well established reputation for serving the construction industry with high performance products that encourage creativity and ensure longevity.

Lehigh White Cement is the foremost supplier of white cements in North America; the company actively participates in educational programs, trade associations and industry expositions throughout the United States.

Depending on the application, Lehigh cement products may be specified in Division 3 - Concrete or Division 4 - Masonry.

APPLICATIONS

Lehigh White Portland Cement, Type I

- Lehigh White Type I Portland Cement is recommended for general architectural applications, such as; precast and prestressed architectural concrete, cast-in-place architectural and structural concrete, architectural concrete masonry, swimming pools and spas, colored mortars, ornamental statuary, reflective floors, floor tiles and pavers, cast stone, terrazzo, tile grout, glass fiber reinforced concrete products, concrete countertops, concrete roof tiles, traffic calming and delineation, median barriers, bridge parapets, sound walls, retaining walls, tunnel construction and reflective concrete paving. Lehigh White Type I Portland Cement may be used as a base to produce vibrant and true colors prized in almost any architectural concrete application.

Lehigh White Portland Cement - Type II/V

- Is typically suitable for the same applications as Type I cement. It is often specified when concrete will be exposed to seawater, soils and or ground water that have elevated sulfate contents or in mass concrete work where lower heat of hydration is desired.

Lehigh High Early Strength White Portland Cement, Type III

- Precast and prestressed architectural concrete, architectural concrete masonry units, cast stone, concrete brick, pavers, roof tile, cold weather construction or any application requiring high early strengths.

Lehigh White Portland Cement - Water Repellent Added

- Plastering applications, masonry mortar, tile grout and as a component in the manufacturer of cementitious coatings and water repellent products.

Lehigh White Masonry Cement, Type N

- For use in masonry mortar where a white or bright colored mortar joint is desired; for use in preparing Type N Mortar as described in ASTM Specification C270, Standard Specification for Mortar for Unit Masonry.

Lehigh White Masonry Cement, Type S

- For use in masonry mortar where a white or bright colored mortar joint is desired; for use in preparing Type S Mortar as described in ASTM Specification C270, Standard Specification for Mortar for Unit Masonry.

QUALITY

Lehigh White Portland and Masonry Cements are produced using carefully selected raw materials and rigid manufacturing standards to assure uniform whiteness and strength. When consistent white or bright colors are desired you can depend on Lehigh White Cements.

SUSTAINABILITY

Portland cement is manufactured by combining four of the top five most common elements on earth. White cement concrete is primarily used in architectural applications and does not have to be painted or covered to look great. Concrete construction can significantly reduce energy consumption due to the thermal mass properties of the material, it is durable and has an unsurpassed service life. White Portland cement concrete has high reflectivity values which helps reduce heat island effects.

STORAGE

Lehigh White Portland and Masonry Cements are moisture sensitive materials. Portland cement must be kept dry in order to retain its quality. Bulk Lehigh White Portland Cement should be stored in weather tight bins or silos. Lehigh White Portland and Masonry Cement bags should be kept in a dry area and stored on pallets whenever possible.

AVAILABILITY

Lehigh White Portland Cement is available through a network of distributors throughout the United States. Lehigh White Masonry Cement is widely available through a network of distributors east of the Rocky Mountains. For more information on Lehigh products or technical assistance, visit us online at www.lehighwhitecement.com or phone 800-523-5488.

CAUTION

Portland cement when dry is non-hazardous. When in contact with moisture (such as in eyes or skin) or when mixed with water to make concrete, mortar or grout, it becomes highly caustic and will burn (as severely as third-degree) the eyes or skin. Inhalation of dry Portland cement can irritate the upper respiratory system. For additional safety information please reference our Material Safety Data Sheets available online at www.lehighwhitecement.com or phone 800-523-5488.

WARRANTY

The information and statements herein are believed to be reliable, but are not to be construed as a warranty or representation for which we assume legal responsibility. No other warranty, representation, or condition of any kind, expressed or implied (including NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), shall apply. Having no control over the use of cement, Lehigh Companies will not guarantee finished work, nor shall they be liable for consequential damages.



FORTON VF-774

Acrylic Co-Polymer For Use In GFRC

PRODUCT OVERVIEW

Forton® VF-774 is an all acrylic, co-polymer dispersion (51% solids) specifically formulated for the GFRC production process. VF-774 is UV stable. It is further formulated to be stable and durable in the high pH Portland cement-based GFRC composite.

The Primary Benefits of Using Forton® VF-774 are:

- **Elimination of the seven day wet cure** required to achieve the maximum strengths of the GFRC composite.
- Significant improvements in the **long-term durability** of the GFRC composite, especially the **maintenance of the long-term flexural strain to failure property, i.e. ductility of the composite (based on a 20 year independent test program).**



PCI Compliance: Forton® VF-774 complies with Appendix G of MNL 130, the Manual for Quality Control for Glass Fiber Reinforced Concrete Products from the PCI for the elimination of the seven day wet cure.

LIQUID POLYMER PROPERTIES

Solids by weight: 51% (±1%)

Viscosity: 100 - 300 cps

pH: 8 - 10

Density at 20°C: 1055 kg/m³

Tg: 11°C

Particle Size: 0.1300 - 0.2500

Grit: 0 - 50 ppm

Other Advantages to Using Forton® VF-774:

- **Improved workability** of the mix at low water/cement ratios, further enhancing the strength of the cured cement matrix.
- **Easy spraying of vertical surfaces** without having the face mix sag.
- **Complete dispersion of iron oxide pigments** for batch-to-batch color consistency of face mixes.
- **UV stability of the Forton® polymer** means architectural finishes maintain their "as produced" colors.
- **Hard cured face mixes** for better sand blasting uniformity.
- **Tighter, denser cured product**, which reduces absolute moisture absorption and vapor permeability while at the same time significantly reducing the rate of absorption as a function of time.
- **Elimination of crazing and spider cracking** in the face mix due to the soft polymer particles in between the cement particle and the sand grain.

	Typical Range of Premix Properties	Typical Range of Spray-Up Properties
Density (Dry)	110 - 130 pcf	120 - 140 pcf
Compressive Strength (Edgewise)	6,000 - 9,000 psi	7,000 - 12,000 psi
Flexural:		
Yield (FY)	700 - 1,200 psi	900 - 1,500 psi
Ultimate Strength (FU)	1,450 - 2,000 psi	2,000 - 3,500 psi
Modulus of Elasticity	1.0x10 ⁶ - 2.9x10 ⁶ psi	1.0x10 ⁶ - 3.0x10 ⁶ psi
Direct Tensile: (ASTM C 1230)		
Yield (TY)	600 - 900 psi	700 - 1,000 psi
Ultimate Strength (TU)	600 - 1,000 psi	1,000 - 1,600 psi
Strain to Failure	0.1 - 0.2 %	0.6 - 1.2 %
Shear:		
Interlaminar	N/A	400 - 800 psi
In-plane	600 - 1,000 psi	1,000 - 1,600 psi
Coefficient of Thermal Expansion	Approx. 12x10 ⁻⁶ in./in./deg. F	Approx. 12x10 ⁻⁶ in./in./deg. F
Thermal Conductivity	3.25 - 7.0 Btu/in./hr/ft ² /deg. F	3.25 - 7.0 Btu/in./hr/ft ² /deg. F
Fire Rating (ASTM E-84)	Class A/Class 1	Class A/Class 1

These are typical values and are not to be used for design or control purposes. Each manufacturer must test production composites to establish physical properties for design. The values achieved in practice will be dependent on mix design, quality control of materials, fabrication process and curing. Values achieved after 28-day cure.

USAGE RECOMMENDATIONS

HANDLING & STORAGE... Forton® VF-774 is supplied in 5-gallon pails (40 lbs/18 kgs), 55-gallon drums (480 lbs/218 kgs) and totes (2,300 lbs/1,043 kgs). VF-774 should not be allowed to freeze. Recommended storage temperature range: 50°F - 100°F (10°C - 38°C). VF-774 should be stored in closed containers out of direct sun light and away from direct sources of heat.

SHELF LIFE... Shelf life of VF-774 is one year in unopened containers when properly stored. Smooth-On cannot guarantee shelf life of opened or repackaged units. **Important:** This product has limited shelf life. Use as soon as possible after opening.

PRE-MIXING... VF-774 can separate over time in storage or transit as evidenced by caramel liquid on the surface. Gently stir with a paddle for 30 seconds. Pre-mixing one time per 24 hour usage cycle is recommended.

MEASURING & MIXING... Assemble all components and accessories before you begin.

Required Materials:

- Portland Cement, Type I (White or Gray)
- Silica Sand (washed, graded, dried. 0 Retention on 20 mesh sieve)
- Forton® VF-774
- Water
- Plasticizer (see recommendation based on application method below)
- AR Glass Fiber (see recommendation based on application method below). **Important: Do not use "E" Glass**
- Pigments - UV Stable, Iron Oxide (liquid or dry, if required)
- Weighing Scales- with digital gram accuracy (do not use postal scale, dietary scale, etc.)
- Mechanical / Power Mixer: 5 - 10 hp vertical high shear mixer or CS Unitec handheld MG120, MG140 or MG160 blades
- NIOSH Approved Dust Mask to minimize dust inhalation while using components.
- Mixing Containers

Material	Suggested Product For: Vibration, Direct Cast Premix	Suggested Product For: Sprayed Premix	Suggested Product For: Spray Up
• AR Glass Fiber	NEG 13H-350Y or 13PH-901X	NEG 13PH-901X or 19PH-901X	NEG 2500H103/DB
• Plasticizer	WR Grace AdvaCast 555 (or equal)	WR Grace Adva 190 (or equal)	WR Grace Adva 190 (or equal)

Typical mix design proportions are shown in chart below for informational purposes only. Producers should develop their own mix design to accommodate their manufacturing process and local raw materials. Mix designs should target a water-to-cement ratio of .33.

Mix Design - Parts By Weight

	Portland Cement	Sand	VF-774	Water	Plasticizer	AR Glass Fiber
Premix	100	85	10 - 12	24 - 27	4 - 8 oz (118 - 236 ml)	3% by weight of entire mix
Spray Up	100	100	12 - 14	24 - 27	4 - 8 oz (118 - 236 ml)	5% by weight of entire mix

Important: Components should be mixed in proper sequence. Standard concrete mixers may be used, but it is recommended to use a high shear mixer specially designed for GFRC to ensure a thoroughly mixed, lump free slurry is produced.

Step 1: Weigh or batch all materials.

Step 2: Add all liquids, including VF-774 and 2 oz. of plasticizer, to mixer.

Step 3: Start mixer on slow (300-500 rpm).

Step 4: Add pigment if used.

Step 5: Add sand.

Step 6: Add cement and increase mixer speed to high (1,000-1,800 rpm).

Step 7: Mix for 1 - 2 minutes.

Step 8: Add the remaining plasticizer to achieve desired workability.

Step 9: Reduce mixer speed to slow (300-500 rpm) and gradually add fiber (Premix only) until dispersed (typically not more than one minute). **Important: Mixing too long or at too high a speed after fiber has been added can filamentize or damage the fiber, resulting in placement issues and reduced strengths.**

APPLYING A RELEASE AGENT... Common mold materials include mold rubber, melamine coated board and birch faced plywood or FRP with tooling resin gel coat. Use a high quality release agent meant for releasing architectural concrete such as Crete-Lease 20 VOC to release GFRC castings from the mold.

CASTING, SPRAYING & CURING...

Casting - Pour mixture in a single spot at the lowest point of mold, and let mixture seek its level. **Vibrating:** After casting, consolidate the slurry and remove entrapped air using a vibrating table or hand vibrator.

Spraying - **For higher volume** of smaller parts or making large cladding panels, GFRC slurry can be sprayed into molds using rotor/stator or peristaltic pumps specifically designed for GFRC. Regardless of spray pump used, a face coat without fiber is typically applied first. After the face coat has properly stiffened, a fiber backup mix is applied in multiple passes, with proper compaction following each pass. **For low volume application** - A hopper gun (Kraft EZY Deck Pro is recommended) can be used to apply face mix. GFRC back up mix can be applied by hand.

Curing - After placement, cover GFRC with plastic tarp / sheeting to prevent excessive moisture loss and maintain heat of hydration to ensure a proper initial cure. Let cure in the mold for 12-16 hours. Curing temperatures should be maintained above 50°F/10°C in order to ensure proper film forming of the VF-774.



Call Us Anytime With Questions About Your Application.

Toll-free: (800) 381-1733 Fax: (610) 252-6200

The new www.smooth-on.com is loaded with information about mold making, casting and more.

062713-ACC

Description

GLENIUM® 7500 full-range water-reducing admixture is based on the next generation of polycarboxylate technology found in all of the GLENIUM 7000 series products. This technology combines state-of-the-art molecular engineering with a precise understanding of regional cements to provide specific and exceptional value to all phases of the concrete construction process.

GLENIUM 7500 admixture is very effective in producing concrete mixtures with different levels of workability including applications that require self-consolidating concrete (SCC). The use of GLENIUM 7500 admixture results in faster setting characteristics as well as improved early age compressive strength. GLENIUM 7500 admixture meets ASTM C 494/C 494M compliance requirements for Type A, water-reducing, and Type F, high-range water-reducing, admixtures.

Applications

Recommended for use in:

- Concrete with varying water reduction requirements (5-40%)
- Concrete where control of workability and setting time is critical
- Concrete where high flowability, increased stability, high early and ultimate strengths, and improved durability are needed
- Production of Rheodynamic® Self-Consolidating Concrete (SCC) mixtures
- 4x4™ Concrete for fast-track construction
- Pervious Concrete mixtures

GLENIUM® 7500

Full-Range Water-Reducing Admixture

Features

- Dosage flexibility for normal, mid-range and high-range applications
- Excellent early strength development
- Controls setting characteristics
- Optimizes slump retention/setting relationship
- Consistent air entrainment

Benefits

- Faster turnover of forms due to accelerated early strength development
- Reduces finishing labor costs due to optimized set times
- Use in fast track construction
- Minimizes the need for slump adjustments at the jobsite
- Less jobsite QC support required
- Fewer rejected loads
- Optimizes concrete mixture costs

Performance Characteristics

Concrete produced with GLENIUM 7500 admixture achieves significantly higher early age strength than first generation polycarboxylate high-range water-reducing admixtures. GLENIUM 7500 admixture also strikes the perfect balance between workability retention and setting characteristics in order to provide efficiency in placing and finishing concrete. The dosage flexibility of GLENIUM 7500 allows it to be used as a normal, mid-range, and high-range water reducer.

Guidelines for Use

Dosage: GLENIUM 7500 admixture has a recommended dosage range of 2-15 fl oz/cwt (130-975 mL/100 kg) of cementitious materials. For most mid to high-range applications, dosages in the range of 5-8 fl oz/cwt (325-520 mL/100 kg) will provide excellent performance. For high performance and Rheodynamic Self-Consolidating Concrete mixtures, dosages of up to 12 fl oz/cwt (780 mL/100 kg) of cementitious materials can be utilized. Because of variations in concrete materials, jobsite conditions and/or applications, dosages outside of the recommended range may be required. In such cases, contact your local BASF Construction Chemicals representative.

Mixing: GLENIUM 7500 admixture can be added with the initial batch water or as a delayed addition. However, optimum water reduction is generally obtained with a delayed addition.

Product Data: GLENIUM® 7500

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: GLENIUM 7500 admixture will neither initiate nor promote corrosion of reinforcing steel embedded in concrete, prestressing steel or of galvanized steel floor and roof systems. Neither calcium chloride nor other chloride-based ingredients are used in the manufacture of GLENIUM 7500 admixture.

Compatibility: GLENIUM 7500 admixture is compatible with most admixtures used in the production of quality concrete, including normal, mid-range and high-range water-reducing admixtures, air-entrainers, accelerators, retarders, extended set control admixtures, corrosion inhibitors, and shrinkage reducers.

Do not use GLENIUM 7500 admixture with admixtures containing beta-naphthalene sulfonate. Erratic behaviors in slump, workability retention and pumpability may be experienced.

Storage and Handling

Storage Temperature: GLENIUM 7500 admixture must be stored at temperatures above 40 °F (5 °C). If GLENIUM 7500 admixture freezes, thaw and reconstitute by mechanical agitation.

Shelf Life: GLENIUM 7500 admixture has a minimum shelf life of 9 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local sales representative regarding suitability for use and dosage recommendations if the shelf life of GLENIUM 7500 admixture has been exceeded.

Packaging

GLENIUM 7500 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Material Safety Data Sheets: GLENIUM 7500 admixture.

Additional Information

For additional information on GLENIUM 7500 admixture or on its use in developing concrete mixtures with special performance characteristics, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative admixtures for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the North American region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

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Description

MB-AE 90 air-entraining admixture is for use in concrete mixtures. It meets the requirements of ASTM C 260, AASHTO M 154 and CRD-C 13.

Applications

Recommended for use in:

- Concrete exposed to cyclic freezing and thawing
- Production of high-quality normal or lightweight concrete (heavyweight concrete normally does not contain entrained air)

MB-AE™ 90

Air-Entraining Admixture

Features

- Ready-to-use in the proper concentration for rapid, accurate dispensing

Benefits

- Improved resistance to damage from cyclic freezing and thawing
- Improved resistance to scaling from deicing salts
- Improved plasticity and workability
- Reduced permeability – increased watertightness
- Reduced segregation and bleeding

Performance Characteristics

Concrete durability research has established that the best protection for concrete from the adverse effects of freezing and thawing cycles and deicing salts results from: proper air content in the hardened concrete, a suitable air-void system in terms of bubble size and spacing, and adequate concrete strength, assuming the use of sound aggregates and proper mixing, transporting, placing, consolidation, finishing and curing techniques. MB-AE 90 admixture can be used to obtain adequate freeze-thaw durability in a properly proportioned concrete mixture, if standard industry practices are followed.

Air Content Determination: The total air content of normal weight concrete should be measured in strict accordance with ASTM C 231, “Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method” or ASTM C 173/C 173M, “Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.”

The air content of lightweight concrete should only be determined using the Volumetric Method. The air content should be verified by calculating the gravimetric air content in accordance with ASTM C 138/C 138M, “Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.” If the total air content, as measured by the Pressure Method or Volumetric Method and as verified by the Gravimetric Method, deviates by more than 1-1/2%, the cause should be determined and corrected through equipment calibration or by whatever process is deemed necessary.

Guidelines for Use

Dosage: There is no standard dosage for MB-AE 90 admixture. The exact quantity of air-entraining admixture needed for a given air content of concrete varies because of differences in concrete-making materials and ambient conditions. Typical factors that might influence the amount of air entrained include: temperature, cementitious materials, sand gradation, sand-aggregate ratio, mixture proportions, slump, means of conveying and placement, consolidation and finishing technique.

Product Data: MB-AE™ 90

The amount of MB-AE 90 admixture used will depend upon the amount of entrained air required under actual job conditions. In a trial mixture, use 1/4 to 4 fl oz/cwt (16-260 mL/100 kg) of cementitious material. Measure the air content of the trial mixture, and, if needed, either increase or decrease the quantity of MB-AE 90 admixture to obtain the desired air content.

In mixtures containing water-reducing or set-control admixtures, the amount of MB-AE 90 admixture needed may be somewhat less than the amount required in plain concrete.

Due to possible changes in the factors that can affect the dosage of MB-AE 90 admixture, frequent air content checks should be made during the course of the work. Adjustments to the dosage should be based on the amount of entrained air required in the mixture at the point of placement.

If an unusually high or low dosage of MB-AE 90 admixture is required to obtain the desired air content, consult your BASF Construction Chemicals representative. In such cases, it may be necessary to determine that, in addition to a proper air content in the fresh concrete, a suitable air-void system is achieved in the hardened concrete.

Dispensing and Mixing: Add MB-AE 90 admixture to the concrete mixture using a dispenser designed for air-entraining admixtures, or add manually using a suitable measuring device that ensures accuracy within plus or minus 3% of the required amount.

For optimum, consistent performance, the air-entraining admixture should be dispensed on damp, fine aggregate. If the concrete mixture contains fine lightweight aggregate, field evaluations should be conducted to determine the best method to dispense the air-entraining admixture.

Precaution

In a 2005 publication from the Portland Cement Association (PCA R&D Serial No. 2789), it was reported that problematic air-void clustering that can potentially lead to above normal decreases in strength was found to coincide with late additions of water to air-entrained concretes. Late additions of water include the conventional practice of holding back water during batching for addition at the jobsite. Therefore, caution should be exercised with delayed additions of water to air-entrained concrete. Furthermore, an air content check should be performed after any post-batching addition to an air-entrained concrete mixture.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MB-AE 90 admixture will neither initiate nor promote corrosion of reinforcing and prestressing steel embedded in concrete, or of galvanized floor and roof systems. No calcium chloride or other chloride-based ingredients are used in the manufacture of this admixture.

Compatibility: MB-AE 90 admixture may be used in combination with any BASF Construction Chemicals admixture, unless stated otherwise on the data sheet for the other product. When used in conjunction with other admixtures, each admixture must be dispensed separately into the concrete mixture.

Storage and Handling

Storage Temperature: MB-AE 90 admixture should be stored and dispensed at 31 °F (-0.5 °C) or higher. Although freezing does not harm this product, precautions should be taken to protect it from freezing. If MB-AE 90 admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: MB-AE 90 admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of MB-AE 90 admixture has been exceeded.

Safety: Chemical goggles and gloves are recommended when transferring or handling this material.

Packaging

MB-AE 90 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Material Safety Data Sheets: MB-AE 90 admixture.

Additional Information

For additional information on MB-AE 90 admixture, or its use in developing a concrete mixture with special performance characteristics, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

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Description

Delvo Stabilizer ready-to-use, liquid admixture is used for making more uniform and predictable high-performance concrete. Delvo Stabilizer admixture retards setting time by controlling the hydration of portland cement and other cementitious materials while facilitating placing and finishing operations. It can be used to stabilize returned plastic concrete and concrete washwater to reduce waste and increase profits. Delvo Stabilizer admixture meets ASTM C 494/C 494M requirements for Type B, retarding, and Type D, water-reducing and retarding, admixtures.

Applications

Recommended for use in:

- Stabilization of concrete washwater
- Stabilization of returned plastic concrete
- Stabilization of freshly batched concrete for long hauls
- 4x4™ Concrete
- Pumped concrete, shotcrete (wet mix) and conventionally-placed concrete
- Plain, reinforced, precast, prestressed, lightweight and normal weight concrete
- Pervious concrete

DELVO® STABILIZER

Hydration Controlling Admixture

Features

- Reduced water content required for a given workability
- Retarded setting time characteristics
- Improved workability
- Reduced segregation

Benefits

- Provides flexibility in the scheduling of placing and finishing operations
- Offsets the effects of slump loss during extended delays between mixing and placing
- Reduces waste associated with concrete washwater and returned concrete
- Increased strength – compressive and flexural

Performance Characteristics

Rate of Hardening: The temperature of a concrete mixture and the ambient temperature (forms, earth, air, etc.) affect the hardening rate of concrete. At higher temperatures, concrete hardens more rapidly which may cause problems with placing and finishing.

One of the functions of Delvo Stabilizer admixture is to retard the set of concrete. Within the normal dosage range, it will generally extend the working and setting times of concrete containing normal portland cement, fly ash, slag cement and silica fume approximately 1 hour to 5 hours compared to a plain concrete mixture. This depends on job materials and temperatures. Trial mixes should be made under approximate job conditions to determine the dosage required.

Compressive Strength: Concrete produced with Delvo Stabilizer admixture will develop higher early (within 24 hours) and higher ultimate strengths than plain concrete when used within the recommended dosage range and under normal, comparable curing conditions. When Delvo Stabilizer admixture is used in heat-cured concrete, the length of the preheating period should be increased until the initial set of the concrete is achieved. The actual heat-curing period is then reduced accordingly to maintain existing production cycles without sacrificing early or ultimate strengths.

Guidelines for Use

Dosage: Delvo Stabilizer admixture is recommended for use at a dosage of 4 ± 1 fl oz/cwt (260 ± 65 mL/100 kg) of cementitious materials for most concrete mixtures using average concrete ingredients. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your BASF Construction Chemicals representative. For concrete washwater and returned concrete stabilization, utilize Delvo charts or the Delvomatic™ software to determine the appropriate dosage rates.

Product Data: DELVO® STABILIZER

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: Delvo Stabilizer admixture will neither initiate nor promote corrosion of reinforcing steel in concrete. This admixture does not contain intentionally-added calcium chloride or other chloride-based ingredients.

Compatibility: Delvo Stabilizer admixture may be used in combination with any BASF Construction Chemicals admixture. When used in conjunction with another admixture, each admixture must be dispensed separately into the mix.

Storage and Handling

Storage Temperature: If Delvo Stabilizer admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: Delvo Stabilizer admixture has a minimum shelf life of 12 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of Delvo Stabilizer admixture has been exceeded.

Packaging

Delvo Stabilizer admixture is supplied in specially designed 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Material Safety Data Sheets: Delvo Stabilizer admixture.

Additional Information

For more information on Delvo Stabilizer admixture, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

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Description

Pozzolith NC 534 patented, ready-to-use, liquid admixture is formulated to accelerate time of setting and to increase early concrete strengths. Pozzolith NC 534 admixture does not contain calcium chloride and is formulated to comply with ASTM C 494/C 494M Type C, accelerating, admixture requirements.

Applications

Recommended for use in:

- Reinforced, precast, pumped, flowable, lightweight or normal weight concrete and shotcrete (wet mix)
- Concrete placed on galvanized steel floor and roof systems which are left in place
- Prestressed concrete
- Fast-track concrete construction
- Concrete subject to chloride ion constraints
- 4x4™ Concrete
- Rheodynamic® Self-Consolidating Concrete (SCC)
- Pervious Concrete

POZZOLITH® NC 534

Accelerating Admixture

Features

- Accelerated setting time across a wide range of temperatures
- Increased early compressive and flexural strength

Benefits

- Earlier finishing of slabs — reduced labor costs
- Reduced in-place concrete costs
- Reduced or eliminated heating and protection time in cold weather
- Earlier stripping and reuse of forms
- Superior finishing characteristics for flatwork and cast surfaces

Performance Characteristics

Mix Data: 453 lb/yd³ (269 kg/m³) of Type I cement; 3-4 in. ; (75-100 mm) slump; concrete temperature 74 °F (23 °C); ambient temperature 50 and 75 °F (10 and 24 °C); Non-air-entrained concrete.

Setting time

Mix @ 50 °F (10 °C)	Initial Set (h:min)	Difference (h:min))
Plain	13:44	REF
Pozzolith NC 534 admixture @		
20 fl oz/cwt (1300 mL/100 kg)	7:11	– 6:33
40 fl oz/cwt (2600 mL/100 kg)	6:05	– 7:39
Mix @ 75 °F (24 °C)		
Plain	8:18	REF
Pozzolith NC 534 admixture @		
20 fl oz/cwt (1300 mL/100 kg)	4:59	– 3:19
40 fl oz/cwt (2600 mL/100 kg)	4:18	– 4:00

Guidelines for Use

Dosage: The recommended dosage range for Pozzolith NC 534 admixture is 10-45 fl oz/cwt (0.65 – 2.9 L/100 kg) of cementitious materials for most concrete mixtures using average concrete ingredients. Because of variations in job conditions and concrete materials, dosage rates other than the recommended amounts may be required. In such cases, contact your BASF Construction Chemicals representative.

The maximum dosage of Pozzolith NC 534 in potable water applications that require the use of NSF Certified products is 30 fl oz/cwt (2.0 L/kg) of cementitious materials. For specialty concrete mixtures such as 4x4™ Concrete, dosages up to 100 fl oz/cwt (6.5 L/100 kg) may be required.

Product Data: POZZOLITH® NC 534

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: Pozzolith NC 534 admixture will neither initiate nor promote corrosion of reinforcing steel in concrete.

Compatibility: Pozzolith NC 534 admixture may be used in combination with any BASF Construction Chemicals admixture. When used in conjunction with other admixtures, each admixture must be dispensed separately into the mix.

Storage and Handling

Storage Temperature: Store at 5 °F (-15 °C) or above. If Pozzolith NC 534 admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: Pozzolith NC 534 admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of Pozzolith NC 534 admixture has been exceeded.

Packaging

This product is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Material Safety Data Sheets: Pozzolith NC 534 admixture.

Additional Information

For additional information on Pozzolith NC 534 admixture or its use in developing a concrete mixture with special performance characteristics, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative admixtures for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the North American region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

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Description

RheoTEC Z-60 admixture is a revolutionary new technology based on significant advances in admixture chemistry.

RheoTEC Z-60 admixture is used as part of an admixture system to provide customized admixture solutions for a wide range of concrete applications. RheoTEC Z-60 admixture is a workability-retaining admixture that provides flexible degrees of slump retention without retardation.

RheoTEC Z-60 admixture provides the concrete producer with the ability to immediately create the optimal admixture system for changing and fluctuating regional raw materials, environmental conditions and project requirements. RheoTEC Z-60 admixture gives the concrete producer the ability to consistently produce and deliver quality concrete mixtures.

RheoTEC Z-60 admixture meets the requirements of ASTM C 494/C 494M Type S, Specific Performance, admixtures.

Applications

Recommended for use in:

- Concrete with varying slump requirements
- Concrete mixtures utilizing supplementary cementitious materials
- Concrete where high flowability, increased stability and durability are needed
- Production of self-consolidating concrete (SCC) mixtures
- Ready-mixed and precast concrete

RheoTEC™ Z-60

Workability-Retaining Admixture

Features

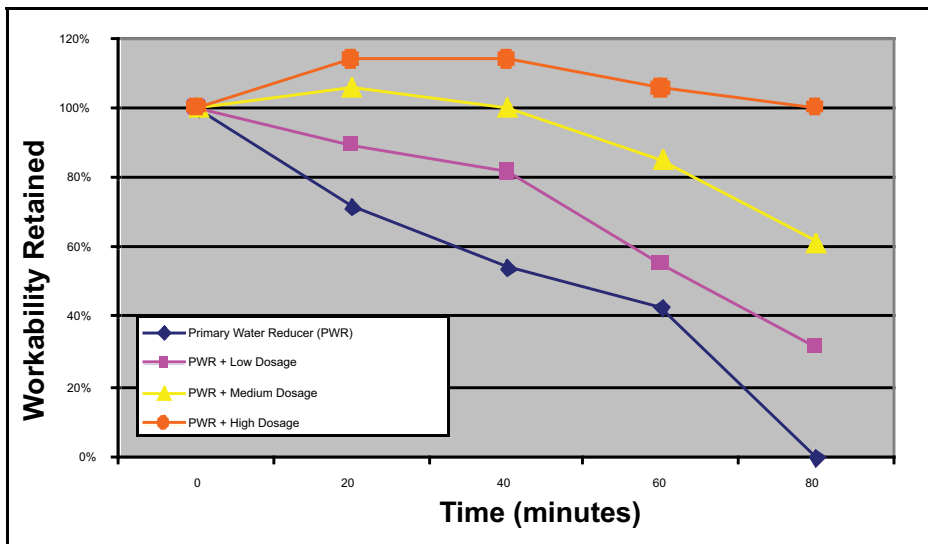
- Workability retention without retardation
- Flexible levels of workability retention by adjusting dosage
- Improved early- and late-age compressive strengths

Benefits

- Promotes greater consistency of concrete workability at the jobsite
- Promotes consistency in compressive strengths via minimized jobsite addition of water
- Minimizes re-dosing of high-range water-reducing admixture at the job site
- Consistent air-entrainment
- Fewer rejected loads and better customer satisfaction due to consistent quality of concrete
- Faster truck turn-around time
- Expanded concrete delivery range

Performance Characteristics

The data in the following graph represents the dramatic performance achievable through the use of RheoTEC Z-60 admixture. Represented in the graph are four mixtures. The first mixture utilized a primary water reducer without RheoTEC Z-60 admixture. The three remaining mixtures utilized the same primary water reducer with a low, medium and high dosage of the RheoTEC Z-60 admixture. These mixtures had concrete temperatures of 90 °F (32 °C) and contained 600 lb/yd³ (356 kg/m³) of cement with a w/c of 0.40.



Product Data: RheoTEC Z-60

Guidelines for Use

Dosage: RheoTEC Z-60 admixture has a recommended dosage range of 3-12 fl oz/cwt (195-780 mL/100 kg) of cementitious materials.

Mixing: RheoTEC Z-60 admixture can be added with the initial batch water or as a delayed addition.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: RheoTEC Z-60 admixture will neither initiate nor promote corrosion of reinforcing steel embedded in concrete, prestressing steel or of galvanized steel floor and roof systems. Neither calcium chloride nor other chloride-based ingredients are used in the manufacture of RheoTEC Z-60.

Compatibility: RheoTEC Z-60 admixture is compatible with most admixtures used in the production of quality concrete, including normal, mid-range and high-range water-reducing admixtures, air-entrainers, accelerators, retarders, extended set control admixtures, corrosion inhibitors, and shrinkage reducers.

Do not use RheoTEC Z-60 admixture with admixtures containing beta-naphthalene sulfonate. Erratic behaviors in slump, workability retention and pumpability may be experienced.

RheoTEC Z-60 admixture has only been tested with admixtures manufactured by BASF Construction Chemicals. As a result, use of RheoTEC Z-60 admixture with non-BASF admixtures may produce unpredictable results. BASF denies any warranty expressed or implied with respect to any application using a non-BASF admixture in connection with the use of RheoTEC Z-60 admixture.

Storage and Handling

Storage Temperature: RheoTEC Z-60 admixture must be stored at temperatures above 40 °F (5 °C). If RheoTEC Z-60 admixture freezes, thaw and reconstitute by mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: RheoTEC Z-60 admixture has a minimum shelf life of 6 months. Depending on storage conditions, the shelf life may be greater than stated.

Packaging

RheoTEC Z-60 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Material Safety Data Sheets: RheoTEC Z-60 admixture.

Additional Information

For additional information on RheoTEC Z-60 admixture or on its use in developing concrete mixtures with special performance characteristics, contact your local sales representative.

BASF Construction Chemicals is a leading provider of innovative chemical admixtures and silica fume for specialty concrete used in the ready-mixed, precast, manufactured concrete products, underground construction and paving markets in the North American region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

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