FRITZ-PAK SET RETARDER

- Powdered set retarder
- For use in prepackaged mortar or concrete
- Slows down set times without affecting compressive strength
- No premixing required
- Will not affect colors in concrete or mortar
- Ideal for decorative concrete work

5.6 oz Set Retarder ................................ Item# 9347135
1 Gallon ER 50 .................................. Item# 9359017
5 Gallon ER 50................................. Item# 9342127

MASTERKURE® ER 50 EVAPORATION REDUCER

- Reduces surface moisture evaporation from freshly placed concrete in rapid-drying conditions, such as high concrete surface or ambient temperatures, low humidity, high winds, and direct sunlight
- Reduces surface moisture evaporation to reduce plastic shrinkage cracking & wind crusting
- Does not affect concrete strength, abrasion resistance or durability
- Allows reduced slump & water content in concrete to facilitate proper hydration of high strength mixtures

1 Gallon ER 50 ............................... Item# 9359017
5 Gallon ER 50 ............................... Item# 9342127

SLOW DOWN SET TIME WITHOUT AFFECTING COMPREHENSIVE STRENGTH

TENON FAST-SET LIQUID SET RETARDER

- Ready-to-use liquid admixture
- Slows the rate of reaction for rapid setting concrete repair products
- Intended for use in conditions where extended working time for proper placement & finishing is needed
- Great for high-traffic concrete pavement repairs, full depth concrete placements, parking structure repairs, bridge deck repairs, industrial floor repairs & precast concrete repairs

1 Gallon Liquid Set Retarder............... Item# 130030
5 Gallon Liquid Set Retarder............. Item# 130040
CURE & SEAL PLUS ASR SAND POP-OUT MINIMIZER
• Clear, waterborne, acrylic polymer membrane-forming compound
• For curing, sealing & dust-proofing of freshly-placed & finished concrete surfaces
• When used as a curing compound immediately after final finishing, this unique product significantly reduces & minimizes Alkali Silica Reaction (ASR) sand pop-outs
• Meets ASTM C-1315 & ASTM C-309

DAY1™ FINISHING AID
• Colloidal silica finishing aid
• Lubricates the surface for faster, easier finishing
• Extends workable time in high wind, heat, or low humidity
• Eliminates the need to add water to the surface which can be detrimental to the surface performance of the slab

PROTECT YOUR INVESTMENT!
CURE YOUR CONCRETE

CURING IS THE MOST IMPORTANT PROCESS TO ACHIEVING THE BEST CONCRETE SLAB POSSIBLE.

WHY CURE?
• Maximizes the hydration process for increased strengths
• Increases durability & extended service life of concrete
• Reduces the potential of surface defects

28 DAYS AFTER YOUR CONCRETE IS CURED, SEALING IS RECOMMENDED.

WHY SEAL?
Some of the benefits, depending on what you choose to seal with, include:
• Protects the longevity of the concrete
• Brings out natural color of the material
• Moisture protection
• Salt & chemical protection

CURING COMPounds
• Cures new concrete or seal and harden existing concrete, terrazzo, brick, stone & other cementious materials
• For commercial or residential projects

Cure & Seal Item# 120223
Clear, acrylic copolymer compound

Cure & Seal WB Item# 120235
Clear, water-borne, acrylic polymer compound

Cure & Seal WB 1315 Item# 129920
Acrylic polymer membrane film forming compound

Cure & Harden Item# 130050
Clear, water-based, silicate-based cure

SPECIALTY CONCRETE CURING
Cure & Seal Plus ASR Sand Pop-Out Minimizer Item# 9381253
• Clear, waterborne, acrylic polymer membrane-forming compound
• For curing, sealing & dust-proofing freshly-placed & finished concrete surfaces
• When used as a curing compound immediately after final finishing, this unique product significantly reduces & minimizes Alkali Silica Reaction (ASR) sand pop-outs

Contact your Cemstone Representative or visit a Cemstone Supply store to learn more about the sealer that is best for your investment.
SEAL YOUR CONCRETE

PENETRATING SEALERS
- Deep penetrating, breathable concrete sealer/water repellent
- Protects against moisture intrusion, freeze/thaw damage, & reinforcing steel corrosion
- Use on fully cured concrete, masonry, brick, stucco, terrazzo, stone, burnished or split-faced block, & other cementious materials
- Natural, invisible protection, may darken surface if over-applied

SILOXANE SEALER
Item# 120231
- Clear, solvent-based
- Protects from effects of rain, water penetration, chemicals, salt & freeze/thaw
- Repels water
- Back rolling is recommended to avoid ponding
- Do not use if concrete was cured with an acrylic curing compound

SILOXANE FINAL SEAL
Item# 120227
- Aromatic, solvent-based
- For use with concrete cured with an acrylic curing compound
- Matte finish
- Water repellent
- Can be used on surfaces with previously applied membrane cure
- Must aggressively back roll

40% SILANE SEALER
Item# 129860
- Clear, solvent-based
- Protects against moisture
- Reduces formation of efflorescence
- Protects from effects of rain, water penetration, chemicals, salt & freeze/thaw

DECORATIVE SEALERS
- Blend of 100% methacrylate polymers in a fast-drying aromatic solvent
- For final protective sealing of decorative concrete, brick, terrazzo, natural & synthetic stone, paving stone, stucco, quarry tile & burnished block
- Dries clear & darkens surface

SUPER CLEAR COAT
Item# 120225
- Gloss finish
- Does not yellow with age or exposure to sunlight

SUPER DIAMOND GLAZE LV
Item# 1129650
High-gloss, “wet look” finish

PAVER SEALERS
- Solvent-based coating made with a blend of methacrylate polymers
- Designed to protect & extend the life of installed pavers
- For use as a final sealer on pavers, concrete, architectural concrete, brick, & other cementious materials
- Forms a membrane to increase protection from
- Protects surfaces from damaging freeze-thaw cycles, deicing salts, efflorescence, chemical erosion, dirt, acids, alkali, oil, grease, foods, & airborne pollutants
- Does not yellow when exposed to the sun’s UV rays
- Color enhancing
- For use as a final sealer on natural stone

PAVER SEAL & SHINE
Item# 129680
- “Wet-look” gloss finish

PAVER SEAL
Item# 129720
- Matte finish
Hot weather* is any combination of the following conditions that tend to impair the quality of freshly mixed concrete by accelerating the rate of moisture loss and rate of cement hydration or otherwise causing detrimental results:

- High ambient temperature
- High concrete temperature
- Low relative humidity
- High wind speed
- Solar radiation

*Hot weather conditions can occur during the spring, fall and winter months.

The following is a list of practices and measures designed to reduce or avoid the potential problems of hot weather concreting:

- Schedule a pre-placement meeting to discuss the requirements of hot weather concreting
- Select concrete materials and proportions with satisfactory records in hot weather conditions
- Reduce and control the temperature of the fresh concrete
- Use a concrete consistency (slump) that permits rapid placement and effective consolidation
- Minimize the time to transport, place, consolidate and finish the concrete
- Plan the job to avoid adverse exposure of the concrete to the environment; schedule placing operations during times of the day or night when weather conditions are favorable
- Protect the concrete from moisture loss during placing and curing period

Potential hot weather problems for concrete in the freshly mixed state include:

- Increased water demand
- Increased rate of slump loss and corresponding tendency to add water at the job site
- Increased rate of setting, resulting in a greater difficulty with handling, compacting and finishing and a greater risk of cold joints
- Increased tendency for plastic shrinkage and thermal cracking
- Increased difficulty in controlling air-entrained content

Potential hot weather problems for concrete in the hardened state include:

- Decreased strengths resulting from higher water demand
- Increased tendency for drying shrinkage and differential thermal cracking from either cooling of the overall structure or from temperature differentials within the cross-section of the member
- Decreased durability resulting from cracking
- Greater variability of surface appearance, such as cold joints or color difference due to different rates of hydration or different water cementitious material ratios (w/cm)
Hot weather conditions can impact mixing, placing, finishing and curing of ready-mix concrete. This guide offers some best practices to minimize those effects when faced with a combination of high temperatures, low humidity and high winds.

**RATE OF EVAPORATION CHART**

Surface drying and plastic-shrinkage cracking is frequently associated with hot weather concreting. It occurs in exposed concrete, primarily in flatwork, when the evaporation rate is greater than the rate at which water rises to the surface (bleed water) of recently placed concrete.

Lerch, W. (1957) states, “If the rate of evaporation approaches 0.2 lbs/ft²/hr, precautions against plastic shrinkage cracking are necessary”. Knowing these four factors, one can effectively estimate the rate of evaporation by using the following chart. It should be noted that the chart estimates the rate of evaporation provided the surface of the concrete is covered with bleed water. One or a combination of the following factors can lead to this condition:

- High air temperature
- High concrete temperature
- High wind velocity
- Low humidity

The probability for surface drying and plastic-shrinkage cracking may be increased if the setting time of the concrete is delayed.

**TO USE THIS CHART:**

1. Enter with air temperature & move UP to relative humidity.
2. Move RIGHT to concrete temperature.
3. Move DOWN to wind velocity.
4. Move LEFT, read approximate rate of evaporation.

---

This document should not be used as a substitute for competent engineering advice, experience or project specifications. Cemstone is not responsible for the misuse of these guidelines. Please contact your Cemstone Representative at 800-CEMSTONE or visit Cemstone.com for more information.
CONCRETE EVAPORATION PROTECTION

If the evaporation rate approaches 0.2 lbs/ft\(^2\)/hr, provide the following concrete evaporation protection:

1. Take special precautions to ensure that the forms and subgrade are sufficiently moist or protected to avoid lowering the water content at the pavement/form/subgrade interface. In hot weather conditions, moisten the subgrade prior to placing the concrete. There should be no puddles or standing water.

2. Minimize solar heat by shading or wetting concrete chutes or other equipment that comes in contact with the plastic concrete.

3. Use a fog spray to increase the relative humidity of the ambient air above the freshly placed concrete if there is a delay in immediately starting the curing process.

4. Ensure that the time between placing and curing is minimized.

5. Immediately apply an approved evaporation retarder to the concrete or increase the surface cure application to 1.5 times the standard specified rate. If an evaporation retarder is used, follow the manufacturer’s instructions on usage and DO NOT finish the evaporation retarder into the surface of the concrete.

6. Use micro-synthetic fibers to reduce the potential for plastic shrinkage cracking.

If the evaporation rate is 0.2 lbs/ft\(^2\)/hr or greater, take EXTREME CAUTION.

HYDRATION STABILIZING ADMIXTURE USE AT HIGH TEMPERATURES

<table>
<thead>
<tr>
<th>Concrete Temperature</th>
<th>0.5 - 1 Hours</th>
<th>1 - 1.5 Hours</th>
<th>1.5 - 2 Hours</th>
<th>2 - 2.5 Hours</th>
<th>2.5 - 3 Hours</th>
<th>3 - 3.5 Hours</th>
<th>3.5 - 4 Hours</th>
<th>4 - 4.5 Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>100°F - 109°F</td>
<td>5 oz/cwt</td>
<td>6 oz/cwt</td>
<td>7 oz/cwt</td>
<td>8 oz/cwt</td>
<td>9 oz/cwt</td>
<td>10 oz/cwt</td>
<td>11 oz/cwt</td>
<td>12 oz/cwt</td>
</tr>
<tr>
<td>90°F - 99°F</td>
<td>4 oz/cwt</td>
<td>5 oz/cwt</td>
<td>6 oz/cwt</td>
<td>7 oz/cwt</td>
<td>8 oz/cwt</td>
<td>9 oz/cwt</td>
<td>10 oz/cwt</td>
<td>11 oz/cwt</td>
</tr>
<tr>
<td>80°F - 89°F</td>
<td>3 oz/cwt</td>
<td>4 oz/cwt</td>
<td>5 oz/cwt</td>
<td>6 oz/cwt</td>
<td>7 oz/cwt</td>
<td>8 oz/cwt</td>
<td>9 oz/cwt</td>
<td>10 oz/cwt</td>
</tr>
<tr>
<td>70°F - 79°F</td>
<td>2 oz/cwt</td>
<td>3 oz/cwt</td>
<td>4 oz/cwt</td>
<td>5 oz/cwt</td>
<td>6 oz/cwt</td>
<td>7 oz/cwt</td>
<td>8 oz/cwt</td>
<td>9 oz/cwt</td>
</tr>
<tr>
<td>60°F - 69°F</td>
<td>1 oz/cwt</td>
<td>2 oz/cwt</td>
<td>3 oz/cwt</td>
<td>4 oz/cwt</td>
<td>5 oz/cwt</td>
<td>6 oz/cwt</td>
<td>7 oz/cwt</td>
<td>8 oz/cwt</td>
</tr>
</tbody>
</table>

For extended finishing time, contact Cemstone Engineering Services. cwt - 100 lbs of cementitious material

Hydration stabilizing admixtures delay the setting time of concrete by controlling the hydration of Portland cement and other cementitious materials while facilitating placing and finishing operations.
CURING CONCRETE

Curing is a critical process to increasing the surface durability and service life of concrete. In hot weather conditions, it is even more critical as the concrete is vulnerable to drying due to high evaporation which can lead to shrinkage cracking, scaling, mortar flaking as well as other surface defects. The following information will discuss the importance of curing in hot weather conditions, how to properly cure and the steps for sealing concrete.

CURING CONCRETE

Immediately following the completion of finishing operations, efforts should be made to protect the concrete from low humidity, drying winds and extreme ambient temperature differentials. Properly cured concrete retains the water added at the time of batching to maximize the hydration process of the cementitious materials within the concrete. This curing process increases strength, abrasion resistance, freeze/thaw resistance and resistance to surface scaling. Curing also decreases permeability, thereby extending the service life of your concrete. There are numerous methods of curing concrete. The key is selecting the best method and the appropriate duration of curing for the application and intended use of the concrete. Two methods of curing are moist curing and the use of curing compounds.

MOIST CURING

Moist curing is the best method for maximizing the surface strength and durability while minimizing early-age drying shrinkage of concrete flatwork. Examples of moist curing methods include:

- Ponding
- Covering the concrete with impervious sheeting or fabric mats kept continuously wet
- Continuous sprinkling

Alternating cycles of wetting and drying should be avoided, as it could result in craze cracking or insufficient curing. To avoid thermal shock, the temperature of water used for initial curing should be as close as possible to the temperature of the concrete.

CURING COMPOUND

When job conditions are not favorable for moist curing, the most practical method of curing is liquid membrane-forming compounds. When applied to concrete, these compounds form a membrane that prevents the internal moisture from evaporating, thus continuing the hydration process. Cemstone recommends the following when curing with membrane-forming compounds, i.e. curing compounds:

- Always follow the manufacturers installation instructions.
- Concrete surfaces exposed to direct sunlight should use heat-reflecting, white pigmented compounds where applicable
- (typically curb and gutter or municipal projects).
- In hot weather conditions, it is critical that a curing compound meeting ASTM C309 or C1315 be used, in accordance with the manufacturers instructions, to prevent surface moisture loss and continue the hydration process.
- Application of the curing compound should immediately follow the final finishing pass.
- The spray nozzle(s) should be positioned sufficiently close to the surface to ensure a consistent film application and proper application rate in accordance with the manufacturer’s instructions.
- Curing compounds should not be used on any surface against which additional concrete or other materials are to be bonded.
ALKALI SILICA REACTION (ASR) SAND POP-OUTS

ASR occurs when alkalis, potassium and sodium, from Portland cement react with certain siliceous aggregates. When this reaction occurs, a gel is formed and, in the presence of moisture, this gel expands causing internal pressure which often leads to surficial sand pop-outs. These sand pop-out predominantly occur in high evaporation rate conditions. To mitigate this, Cemstone has developed a curing compound, Cure & Seal Plus ASR Sand Pop-Out Minimizer, that has been proven to minimize the effects of this reaction. When ACI 305 hot weather conditions exist and there is the possibility of ASR sand pop-outs, apply Cemstone Cure & Seal Plus ASR Sand Pop-Out Minimizer immediately after final finishing is completed. Please see page 3 for Cemstone Cure & Seal Plus ASR Sand Pop-Out Minimizer product information. Find coverage rates, technical data, application instructions and other pertinent information on the data sheet at CemstoneSupply.com.

SEALING CONCRETE BEFORE OCTOBER 1ST

SEALING CONCRETE

Properly sealing concrete helps maintain the appearance and durability of the concrete after it has had adequate time to cure, which is approximately 28 days after placement. Sealing is designed to keep moisture and contaminants, like deicing chemicals, from penetrating into the concrete. Since sealers eventually degrade from wear and environmental exposure and thus no longer function as intended, concrete should be sealed on a regular basis in accordance with the sealer manufacturer’s instructions or as needed. Cemstone recommends the following when sealing your concrete:

• Always follow the manufacturer’s installation instructions.
• Prior to sealing/resealing, an aggressive power washing or power brooming may be required to remove any dirt or stains from the concrete surface.
• For deeper stains that are not easily removed, contact your Cemstone Sales Representative for a list of products and methods designed to remove tough stains.
• After power washing, the concrete surface must be allowed to dry for a period of 72 hours before applying any sealer material.

Based on the method of curing, sealing your concrete before October 1st should be implemented using one of the following methods:

CURING METHOD 1
Apply an Acrylic Based Curing Compound and seal 28 days later.


CURING METHOD 2
Wet Curing or Dissipating Curing Compound and seal 28 days later.

Recommended Sealers: Siloxane Based Sealer (Cemstone Siloxane Sealer) or Acrylic Based Sealer (Cemstone Cure & Seal, Cemstone Cure & Seal WB, Cemstone Cure & Plus ASR Sand Pop-Out Minimizer, Cemstone Super Clear Coat, or Cemstone Diamond Glaze).

Special precautions must be taken when sealing exterior concrete AFTER October 1st. Contact your Cemstone Account Representative for more information.

FOLLOW CEMSTONE

Instagram Twitter YouTube LinkedIn
YOUR SAFETY MATTERS

EXPOSURE TO WET CONCRETE CAN LEAD TO SERIOUS INJURIES

Working with concrete without proper use of the appropriate Personal Protective Equipment (PPE) can damage the skin. “Cement burns” range from minor redness or irritation to serious chemical burns.

ALKALI BURNS FROM WET CEMENT/CONCRETE

When water is added Portland cement, calcium hydroxide is formed. This wet cement/concrete is caustic, has a pH as high as 12.9, and can produce third-degree alkali burns after 2 hours of contact. An inexperienced finisher may be unaware of this danger and may stand or kneel in the wet cement/concrete for long periods resulting in burns. General physicians may not recognize the seriousness of the injury in its early stages or the significance of a history of prolonged contact with wet cement/concrete. All people working with wet cement/concrete should be warned about its dangers and advised to immediately wash and dry their skin properly if contact does occur.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Minimize contact with wet Portland cement/concrete. Compliance with OSHA’s requirements for provision of PPE, washing facilities, hazard communication and safety training, along with the good skin hygiene and work practices listed below, will aid in protecting against hazardous contact with wet cement/concrete. Wear the following protective gear when working with concrete: goggles or face shield, hardhat, protective over-boots, long pants, long sleeves and gloves.

- Anyone who may come into contact with wet Portland cement/concrete should wear proper gloves. Well-fitting butyl or nitrile gloves, rather than cotton or leather gloves, are frequently recommended for caustic materials such as Portland cement.
- Loose-fitting gloves can let wet cement/concrete in. Use glove liners for added comfort.
- Wash and thoroughly dry hands before putting on gloves and each time they are removed.
- Follow proper procedures for removing gloves, whether reusing or disposing.
- Protect your arms and hands by wearing rubber gloves duct taped to a long sleeved shirt. Protect your legs by wearing rubber boots duct taped to long pants to prevent wet cement/concrete from coming in contact with your skin.

SKIN CARE & TREATMENT

- Wash areas of the skin that come in contact with wet cement/concrete in clean, cool water and a pH-neutral or slightly acidic soap.
- You can neutralize caustic residues of cement/concrete on the skin by using a mildly acidic solution such as diluted vinegar or a buffering solution.
- We recommend not using abrasives or waterless hand cleaners, such as alcohol-based gels or citrus cleaners when working with cement/concrete.
- Avoid wearing watches and rings as wet cement/concrete can collect under them.
- Do not use lanolin, petroleum jelly, or other skin softening products. These substances can seal cement/concrete residue to the skin, increase the skin’s ability to absorb contaminants, and irritate the skin.
- Do not use skin softening products to treat cement/concrete burns.
SHOP AT CEMSTONE SUPPLY

MAIN LOCATIONS

EAGAN, MN
1090 Gemini Rd
651-905-1500

MANKATO, MN
1316 North Broad St
507-345-7773

OWATONNA, MN
433 W North St
507-451-4271

RIVER FALLS, WI
W9341 830th Ave
715-425-1119

ROCHESTER, MN
3705 Enterprise Dr SW
507-252-1129

ST. CLOUD, MN
1153 Hwy 10 S
320-251-6031

EXPRESS LOCATIONS

BRAINERD
17229 Co Rd 25
218-829-9239

FAIRMONT
2200 North Bixby Rd
507-238-4733

JORDAN
3350 West 166th St
952-492-3939

ROCK CREEK
5962 State Hwy 70
320-629-7921

DELANO
1011 Babcock Blvd
763-972-6111

HASTINGS
314 21st St E
651-437-6985

NORTHLAND
1011 Babcock Blvd
763-972-6111

ST. JAMES
2 11th St N
507-375-3951

EAST BETHEL
24480 Baltimore St NE
763-444-3710

ISLE
1515 410th St
320-676-3365

RED WING
27592 Hwy 61
651-388-8996

WORTHINGTON
21040 27th St
651-388-8996

CAMERON
1011 South 1st St
715-458-4060

DRESSER
2414 State Rd 35
715-755-2906

DURAND
W3770 State Hwy 10
715-246-4238

HAYWARD
16590 W US Hwy 63
715-986-4442

NEW RICHMOND
1190 County Rd G
715-246-4238

SPOONER
W6465 Beaverbrook Ave
715-635-7952

TURTLE LAKE
153 150th Ave
715-986-4442

FORT DODGE
2060 Quail Ave
515-955-6781

NORTHWOOD
1343 Hwy 105 W
641-324-1063

© 2022 Cemstone Companies. All rights reserved.