



HE Grout

High Early Strength Non-Shrink Grout

DESCRIPTION

HE Grout is a blend of specialty cements, admixtures and proprietary aggregates designed to provide high flexural and compressive strength performance from damp pack to fluid consistencies. **HE Grout** is non-metallic, non-shrink, non gas forming and contains no chlorides or aluminum powders.

USES

HE Grout is ideal for a wide variety of applications that include:

- **Precision Grouting:** Machinery bases, compressors, punch presses, generators
- **Structural Grouting:** Steel columns, precast columns, crane rails, beams
- **Anchoring:** Guard rails, sign posts, dowels, rods, bolts
- **Pumping Applications:** Excellent flowability

BENEFITS

- Versatile: Plastic or flowable consistency
- Cost effective: Extendable up to 50%
- Strength: Attains high compressive strengths at specified water ratios
- Sets quickly, even in temperatures as low as 35°F
- Security: Maximum, uniform bearing support
- Non Metallic / Non Corrosive
- Hardens free of bleeding or segregation
- Consistent: Strict Quality Control testing and standards

STANDARDS

HE Grout has been specifically formulated to exceed the requirements of ASTM C-1107, Grade C, Corp of Engineers CRD C-621 and AASHTO T-260.

SURFACE PREPARATION

All surfaces in contact with **HE Grout** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces may need to be mechanically abraded to provide necessary bonding requirements. ACI recommends that the area to be grouted should be saturated for 24 hours before placement. Remove any standing water. Substrate should be saturated, surface dry (SSD). Maintain contact areas between 45°F (7°C) and 90°F (32°C) prior to grouting and during initial curing period.

FORMING

Method of forming must provide for rapid, continuous grout placement. For pourable grout, construct forms to retain grout without leakage. Forms should be coated with **US SPEC Slickote** for easy removal.

PHYSICAL PROPERTIES

Compressive Strength (ASTM C-109*)

SET	1 DAY	3 DAYS	28 DAYS
FLOWABLE	5,000 psi (34.47 MPa)	8,500 psi (58.61 MPa)	12,000 psi (82.74 MPa)

Rate of Set (ASTM C-266*)

45 Minutes, 30 Minute Working Time

Height Change - Moist Cure Hardened (ASTM C-1090*) (Fluid #3)

AGE	% HEIGHT CHANGE
1 DAY	+0.01
3 DAYS	+0.03
7 DAYS	+0.05
28 DAYS	+0.05

Flexural Strength (ASTM C-78*) (Fluid #3)

AGE	FLEXURAL STRENGTH
3 DAYS	700 psi (4.82 MPa)
7 DAYS	730 psi (5.03 MPa)
28 DAYS	1,130 psi (7.79 MPa)

Bond Strength (ASTM C-882*) (Fluid #3)

AGE	APPLIED LOAD	SHEAR BOND STRENGTH
7 DAYS	24,700	1,750 psi (12.06 MPa)

100% of rupture occurred in dummy section

*Notes: 73°F (22.8°C) 55% humidity
Flowable = 4 qts. water

Packaging: 50 lb (22.7 kg) bag, 63 bags per pallet



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MIXING

For best results, use a mechanical mixer with rotating blades. Pre-wet mixer and empty excess water. Place cool, clean potable water in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes to achieve desired consistency. Mix only enough grout that can be placed within working time. For plastic consistency, use 3.5 qts of water. For flowable consistency, use 4 qts of water. For fluid consistency, use 4.5 qts of water. These mix ratios provide a guideline. The actual water demand will depend on type of mixer used, water temperature and ambient temperature. Adjust the water to achieve the desired flow. Recommended flow is 25 to 35 seconds using the ASTM C-939 Flow Cone Method. For placements greater than 3" depth, **HE Grout** must be extended by up to 30%, by weight, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Grout should be placed using established procedures according to American Concrete Institute recommendations. **HE Grout** can be placed by pumping, pouring, rodding or strapping. Mechanical vibration may cause segregation of aggregates. Place grout on one side of area. Let grout flow to opposite and adjacent sides to avoid entrapment of air and uneven bearing of the grouted surface. When necessary, provide vent holes. Grout should continue to be placed until it protrudes from the entire perimeter area. Grout "head" and excess grout may be removed after initial set.

FINISHING & CURING

Follow standard ACI curing practices. Do not disturb formwork or grout for 24 hours. Use wet rags or burlap to cure for 6 hours after placement. After 6 hours, remove rags from exposed surfaces and cure with a membrane forming curing compound such as **US SPEC Maxcure Resin Clear**, **Hydrasheen 15%** or **CS-25-1315**. For best results, exposed grout should extend downward at a 45° angle from edge of base.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not use as a patching or overlay mortar or in unconfined areas. Normal conditions working time is 30 minutes. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications,

contact your US SPEC manufacturer's representative.

REGULATORY

Read and follow application information, precautions and Material Safety Data Information.

Right-to-know

This product contains Portland Cement (CAS#65997-15-1) and Crystalline Silica (CAS# 14808-60-7)

HMIS

Health 1, Fire 0, Reactivity 0

Prop 65

Warning! This product contains Crystalline Silica, a chemical known to the State of California to cause cancer or reproductive toxicity.

VOC Content

0 g/L

CAUTION

EYE AND SKIN IRRITANT

Contains Portland Cement (CAS# 65997-15-1) and Crystalline Silica (CAS# 14808-60-7). Do not allow contact with eyes or skin. Avoid breathing dust - silica may cause serious lung problems. There is limited evidence silica is a carcinogen. The use of gloves, goggles, dust masks and other protective clothing is recommended. If cement or sand particles get into eyes, rinse immediately with clean water and seek prompt medical attention.

TECHNICAL SERVICE

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NOTICE OF LIMITED WARRANTY US MIX Co. (manufacturer) warrants to buyer that this product at the time and place of shipment is of good quality and conforms to the manufacturer's specifications in force on the date of manufacture when used in accordance with the instructions hereon. Manufacturer cannot warrant or guarantee any particular method of use, application or performance of the product under any particular condition. This limited warranty cannot be extended or amended by manufacturer's sales, people, distributors or representatives or by any sales information, specifications of anyone other than the manufacturer. Liability under this warranty is expressly limited to refund of the purchase price.

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Yield: 50 lbs (22.7 kg) will fill approximately 0.43 ft³ (0.012 m³) when 4 qts mixing water is used.