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## 1428 HP

### Non-Shrink, Non-Ferrous, Mineral-Aggregate-Based Precision Grout

#### DESCRIPTION

1428 HP is a hydraulic-cement-based, precision, non-shrink, load-bearing grout having an extended working time up to 30 minutes under fluid condition. 1428 HP is designed to transfer load effectively and safely, ensuring long service time of the grouted item. It is a non-corrosive, non-metallic, mineral-based precision grout, developed to have high initial and ultimate flexural and compressive strengths. 1428 HP offers exceptional workability and is easily placed by pouring or pumping. The product is designed to give non-shrink performance under various conditions for both interior and exterior applications.

#### USES

1428 HP is designed for precision grouting of machinery and equipment base plates, windmill turbines, generators, rolling mills, compressors, or similar types of machinery. 1428 HP is also designed for grouting soleplates, bridge seats, precast columns and beams, steel columns pads, precast beams, and segmental bridge construction. 1428 HP can also be used for anchoring of guardrails, signposts, bridge seats, anchor bolts, guide wires, and dowels.

#### FEATURES/BENEFITS

- May be mixed to plastic, flowable, and fluid consistencies for ease of application.
- Very high compressive and flexural strengths.
- High modulus to ensure proper load transfer.
- Non-shrink ensures proper load transfer.
- Outstanding flow characteristics; maintains flow for up to 30 minutes at fluid consistency.
- Quickly and easily placed by pouring or pumping.
- Resists heat up to 600° F (315° C).
- Resists many chemicals, including oils, petroleum products, solvents, and mild caustic alkalis.
- May be extended up to 50% by weight.
- No added chloride or gypsum.

#### PACKAGING

50 Lb. (22.7 kg) Poly-Lined Bags

#### SPECIFICATIONS/STANDARDS

- ASTM C 1107
- Corps of Engineers Specification: CRD-C 621
- USDA Accepted

#### SHELF LIFE

One year when stored in unopened containers in dry conditions. Store between 40° - 95° F (4.4° - 35° C). Do not store product outside.

#### YIELD

Each bag yields 0.43 - 0.64 ft.<sup>3</sup> (0.0122 m<sup>3</sup>) of in-place grout using the median water ratio level, dependent upon rate of extension.

#### APPLICATION

Grouting application shall be performed in accordance to American Concrete Institute (ACI) 351.1R: Grouting between Foundations and Bases for Support of Equipment and Machinery and other applicable industry standard practices.

**Surface Preparation ...** All grout contact surfaces must be free of oil, grease, scale, penetrating sealers, or all other types of contaminants that will interfere with the bond. Mechanically roughen or high pressure water-jet the existing concrete substrate. Surface must be rough and profiled, but generally level. Grouting area must be saturated with water 12 - 24 hours prior to grouting. Remove all excess water before placing grout.

**Forming ...** Forming method must provide for rapid, continuous grout placement. For pouring, allow a minimum clearance of 3" (76.2 mm) for entry and 6" (152.4 mm) minimum grout "head." Forming must also provide for venting to avoid entrapment of air. Provide 1/2" (12.7 mm) minimum form clearance on all sides and 1" (25.4 mm) clearance for head. Ensure form is well-sealed and an appropriate form release agent has been applied for that type of form.

CONTINUED ON REVERSE SIDE ...

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**Mixing** ... Small quantities of 1428 HP may be hand-mixed in a concrete mixing pan until lump-free. For large quantities and continuous pours, mix using a mortar mixer with rubber-tipped blades or appropriate grout pump for a minimum of three minutes or until lump-free and uniform. Use the minimum water required to produce desired placement consistency. Use four quarts (3.8 L) of water per bag for plastic consistency; 4.35 qt. (4.1 L) for medium flow (pourable), and 4.8 qt. (5.6 L) for high flow. Mix in two steps: Add 2/3 of water requirement, then add grout. After partial mixing, add remainder of water for desired consistency. Thoroughly mix total quantity for 2 - 3 minutes. Do not mix more than can be placed in 15 minutes at 75° F (23° C). Do not re-temper.

**Aggregate Extension** ... When grouting large areas, extend 1428 HP with washed, dried, well-graded, non-reactive, dense pea gravel. For thicknesses 2" – 4" (50.8 – 101.6 mm), add up to 25% 3/8" (9.5 mm) pea gravel. For medium-flow mixes, 4" (50.8 mm) and over, add up to 50% 3/8" (9.5 mm) pea gravel. The addition of pea gravel is based on percentage of the weight of the dry grout. The use of aggregate to extend the 1428 HP will reduce flow and pumping characteristics. A well graded aggregate conforming to table 2 of ASTM C33, Size Number 8 will help to minimize loss of flow and pumping characteristics.

**Placement** ... 1428 HP is easily placed by pouring or pumping and compaction can be accomplished by rodding or tapping. Place grout on one side, flowing to opposite and adjacent sides, to avoid entrapment of air. When necessary, provide vent holes. Grout head and excess grout may be removed after initial set.

**Pumping** ... 1428 HP when mixed to a flowable to fluid consistency without the addition of aggregate can be pumped using a suitable grout/mortar pump such as a Ventures Equipment King Scorpion Grout Pump. Pump types that have successfully pumped 1428 HP are rotor-stator and positive displacement type pumps. Consult pump manufacturer for details on specific pumping instructions for their particular equipment.

If 1428 HP has been extended with aggregate, ensure that the pump type is designed to handle the size and characteristics of the coarse aggregate. Ensure that the pump is equipped with a suitable Rock Valve™ or S-Valve or similar style pump designed to process coarse aggregate. Mortar or standard-type grout pumps should not be used to pump 1428 HP that has been extended with aggregate, since these types of pumps are not designed to process aggregates.

**Curing** ... Immediately following application, cure 1428 HP using a suitable curing compound from W. R. MEADOWS, or in accordance with ACI 308. 2200-WHITE series or 1100-CLEAR series from W. R. MEADOWS is recommended. When conditions exist for rapid early water loss, the use of EVAPRE™ from W. R. MEADOWS is also recommended.

## LIMITATIONS/PRECAUTIONS

Do not use as a repair mortar, overlay or underlayment. Please contact W. R. MEADOWS for specific repair mortar recommendations. Set time, flow and strength development are highly dependent on temperature. Colder temperatures will increase set time and delay compressive strength gain. Generally, set time will increase for every 10° F difference from 75° F in grout temperature by 30%. For example, at 65° F, 1428 HP mixed to flowable consistency will have an approximate set time of 6.5 hours as compared to 5 hours stated for 75° F. Compressive strength development will be delayed up to 60% in cold temperatures versus 75° F at a given cure time and mix ratio. Grouting should be done using established concreting procedures according to ACI recommendations. Read and follow application information, precautions and Safety Data Sheet information. As with all cement-based materials, avoid direct contact with aluminum or similar type reactive metals. If contact must occur, coat the aluminum or other reactive metals with REZI-WELD 1000 or REZI-WELD LV from W. R. MEADOWS.

This data sheet provides a summary of the factors, precautions, limitations, and design theories that should be considered when designing a grouting application, but is not stand alone or complete; project, environmental, and application specific requirements must be considered before drafting a guide specification, determining suitability or application of material. The suitability and/or functionality of the product are the direct and sole responsibility of the licensed design professional, applicator, and/or installer of the product. W. R. MEADOWS is not directly or indirectly acting in any manner as the project licensed design professional, such as, but not limited to, a professional engineer, a licensed architect, and/or a consultant.

**TECHNICAL DATA**

The following data was determined using the water amount for desired consistency as stated below per bag at 75° F (23° C).

<b>Consistency per ASTM C827-95a</b>	<b>Plastic</b>	<b>Flowable</b>	<b>Fluid</b>
Mix Ratio per 50 lb. (22.7 kg) bag	4 Qt. (3.8 L)	4.35 Qt. (4.12 L)	4.8 Qt. (4.55 L)
Flow per <u>ASTM C230-90</u> 5 Drops/Flow Table	110%	130%	
Flow per ASTM C939-94a  <b>Flow Cone</b>			35s
<b>SET TIME per ASTM C191</b>			
Initial Set	1 hr.	3 hrs.	5 hrs.
Final Set	3 hrs.	5 hrs.	7 hrs.
<b>EXPANSION</b>			
Age:			
24 hours	0.13%	0.10%	0.02%
3 days	0.16%	0.13%	0.04%
7 days	0.17%	0.13%	0.05%
28 days	0.17%	0.14%	0.06%
<b>SHRINKAGE %</b>	NONE	NONE	NONE
<b>COMPRESSIVE STRENGTH</b>			
<b>AGE</b>	<b>psi (MPa)</b>	<b>psi (MPa)</b>	<b>psi (MPa)</b>
1 day	6,500 (44.8)	5,000 (34.5)	4,000 (27.8)
3 days	8,000 (55.2)	6,500 (44.8)	5,500 (37.0)
7 days	10,000 (68.9)	8,500 (58.7)	7,500 (51.7)
28 days	14,000 (96.5)	11,500 (79.3)	9,000 (62.0)
<i>All technical data is typical information, but will vary due to testing methods, conditions, procedures, batching variations, and raw materials variances.</i>			

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**LIMITED WARRANTY**

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

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