

TECHNICAL DATA SHEET

DESCRIPTION

A non-shrink cementitious grout designed to resist "wash-out" in underwater or tidal zone grouting applications. Underwater Grout is a specific blend of portland cement, specially graded aggregates and admixtures to impart controlled expansion and exceptional cohesiveness for maximum flowability and strength.

USE

Recommended for underwater grouting for bridge columns, concrete pilings and dam repairs where a "wash-out" resistant, free-flowing or pumpable non-shrink, high strength grout is required.

FEATURES

- "Wash-out" resistant thixotropic consistency for dependable underwater repairs (displaces water)
- Free-flowing and/or pumpable consistency for easy application
- High early and ultimate strength for fast repair and turn around without chlorides
- Positive expansion for maximum durability and adhesion

PROPERTIES

Corps of Engineers Specification for non-shrink grout: CRD-C 621, Grades A, B and C

ASTM C-1107: Specification for non-shrink grout Grades A, B and C

Expansion (ASTM C-1090):

1 day-0-0.3

3 days-0-0.3

14 days-0-0.3

28 days-0-0.3

Height Change (ASTM C-827): .20%

Compressive Strength ASTM C-109 (Flowable consistency)

1 day 2000 psi (13.79 MPa)

3 days 5500 psi (37.92 MPa)

7 days 6500 psi (44.8 MPa)

28 days 8500 psi (58.6 MPa)

Estimating Guide

Yield: 0.43 cu. ft. /50 lbs. (0.012 cu m /22.7 kg) bag

Packaging

PRODUCT CODE	PACKAGE	SIZE	
		lbs	kg
309351	Bag	50	22.67

STORAGE

Store in a cool, dry area free from direct sunlight. Shelf life of unopened bags, when stored in a dry facility is 12 months. Excessive temperature differential and /or high humidity can shorten the shelf life expectancy.

APPLICATION

Surface Preparation:

Substrate must be clean and sound. All loose material must be removed. Substrates which are permanently immersed should be sand blasted or cleaned with a high pressure water jet. Non-immersed or intermittently immersed substrates can also be prepared using these techniques. Depending on the circumstances, scabbling or brush hammering may be appropriate. In view of the fluid nature of Underwater Grout, all form work must be grout-tight; this can be achieved using foam rubber sealing strips at the edges.

Water Requirements:

7-8 pints /50 lbs. (3.31-3.79 L /22.7 kg) bag.

Mixing:

A mechanical mixer with rotating blades like a mortar mixer is best. Small quantities can be mixed with a drill and paddle. When mixing less than a full bag, always first agitate the bag thoroughly so that a representative sample is obtained. Place approximately 3/4 of the anticipated mix water into the mixer and add the grout mix, adding the minimum additional water necessary to achieve desired consistency. The quantity of water required to achieve a flowable consistency must be accurately measured for each mix. Start with 7 pints (3.31 L) and add additional water to bring the consistency to a flowable yet cohesive mix. Do not exceed 8 (3.79 L) pints of water. Place the specified amount of water in the mixer. Slowly add the contents of the Underwater Grout bag, mixing continuously. When all the contents are added, mix continuously for a minimum of 3 minutes making sure that a smooth, uniform mix is obtained.

Placement:

Place the grout within 20 minutes of mixing to gain full benefit of the expansion process. Continuous grout flow is required and the grout should be poured or pumped through a flexible tube with a minimum diameter of ½ in. (1.3 cm) to the lowest point in the form. At the start of the operation the grout flow should be restricted in order to avoid any water entrapment. The bottom of the tube may be raised as necessary to reduce any back pressure but should not be raised above the level of the grout.

Application Thickness:

Underwater Grout may be placed in thickness up to 4 in. (10.2 cm) in one pour when placed above water. When placed under water, the heat sink effect in this environment permits thickness up to 7 in. (17.8 cm) to be placed. For thicker sections up to 10 in. (25.4 cm) above water and 20 in. (50.8 cm) under water, it is necessary to fill out the Underwater Grout using a clean, rounded and well graded aggregate in the size range 3/8 to ½ in. (0.95-1.3 cm). The quantity of aggregate added should not exceed 1 part aggregate to 1 part Underwater Grout by weight. For such mixes a concrete mixer must be used.

TECHNICAL DATA SHEET**CLEAN UP**

Use clean water. Hardened material will require mechanical removal methods.

CURING

Curing will not be required in totally submerged conditions. However, when cast above water, Dayton Superior recommends using a Dayton Superior curing compound, cure & seal or a wet cure for 3 days.

LIMITATIONS**FOR PROFESSIONAL USE ONLY**

Do not re-temper after initial mixing. Do not add other cements or additives. Setting time for the Underwater Grout will slow during cooler weather, less than 50°F (10°C) and speed up during hot weather, greater than 80°F (27°C). Prepackaged material segregates while in the bag, thus when mixing less than a full bag it is recommended to first agitate the bag to assure it is blended prior to sampling. Maintain the temperature of the grout and contact area at 45°F (7°C) to 90°F (32°C) for a minimum of 24 hours.

PRECAUTIONS**READ SDS PRIOR TO USING PRODUCT**

- Product contains Crystalline Silica and Portland Cement – Avoid breathing dust – Silica may cause serious lung problems
- Use with adequate ventilation
- Wear protective clothing, gloves and eye protection (goggles, safety glasses and/or face shield)
- Keep out of the reach of children
- Do not take internally
- In case of ingestion, seek medical help immediately
- May cause skin irritation upon contact, especially prolonged or repeated. If skin contact occurs, wash immediately with soap and water and seek medical help as needed.
- If eye contact occurs, flush immediately with clean water and seek medical help as needed
- Dispose of waste material in accordance with federal, state and local requirements

MANUFACTURER

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WARRANTY

Dayton Superior Corporation ("Dayton") warrants for 12 months from the date of manufacture or for the duration of the published product shelf life, whichever is less, that at the time of shipment by Dayton, the product is free of manufacturing defects and conforms to Dayton's product properties in force on the date of acceptance by Dayton of the order. Dayton shall only be liable under this warranty if the product has been applied, used, and stored in accordance with Dayton's instructions, especially surface preparation and installation, in force on the date of acceptance by Dayton of the order. The purchaser must examine the product when received and promptly notify Dayton in writing of any non-conformity before the product is used and no later than 30 days after such non-conformity is first discovered. If Dayton, in its sole discretion, determines that the product breached the above warranty, it will, in its sole discretion, replace the non-conforming product, refund the purchase price or issue a credit in the amount of the purchase price. This is the sole and exclusive remedy for breach of this warranty. Only a Dayton officer is authorized to modify this warranty. The information in this data sheet supersedes all other sales information received by the customer during the sales process. THE FOREGOING WARRANTY SHALL BE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER WARRANTIES OTHERWISE ARISING BY OPERATION OF LAW, COURSE OF DEALING, CUSTOM, TRADE OR OTHERWISE.

Dayton shall not be liable in contract or in tort (including, without limitation, negligence, strict liability or otherwise) for loss of sales, revenues or profits; cost of capital or funds; business interruption or cost of downtime, loss of use, damage to or loss of use of other property (real or personal); failure to realize expected savings; frustration of economic or business expectations; claims by third parties (other than for bodily injury), or economic losses of any kind; or for any special, incidental, indirect, consequential, punitive or exemplary damages arising in any way out of the performance of, or failure to perform, its obligations under any contract for sale of product, even if Dayton could foresee or has been advised of the possibility of such damages. The Parties expressly agree that these limitations on damages are allocations of risk constituting, in part, the consideration for this contract, and also that such limitations shall survive the determination of any court of competent jurisdiction that any remedy provided in these terms or available at law fails of its essential purpose.