

CERTI-VEX[®] GROUT UW

CEMENTITIOUS UNDERWATER GROUT

NON-SHRINK • NO WASH OUT • ASTM C 1107 • NON-METALLIC

DESCRIPTION

CERTI-VEX GROUT UW is a ready to use, non shrink, non metallic cementitious grout engineered for underwater applications. It contains no chlorides or gypsum. When properly mixed the grout exhibits exceptional strength and excellent resistance to wash out.

The material's unique formula of high quality Portland Cement, finely graded aggregates, shrinkage compensating admixtures and expansive cementitious binder allow it to maintain its strengths at various consistencies.

The product contains a special migrating corrosion inhibitor protecting reinforced steel and other metals embedded in concrete from corrosion.

RECOMMENDED FOR

- Bridge columns
- Concrete piles
- Concrete dams
- Repairs to underwater or tidal zone concrete structures

BENEFITS

- Salt water resistant
- Pumpable and flowable
- Effectively displaces water
- Protects against the harmful effects of anodic and cathodic corrosion
- Excellent flexural and compressive strengths
- Resists washout

SURFACE PREPARATION

- All surfaces must be clean, sound and free of surface contaminants.
- All loose and unstable material must be removed.
- Permanently immersed substrates should be prepared by sand blasting or high pressure water jet.

PLACEMENT

- Certi-Vex Grout UW may be poured or pumped (tremie method) into place. In areas not completely under water, such as tidal zones, keep moist for at least 24 hours or apply a Vexcon Chemical clear curing compound. Contact Vexcon Chemicals for product recommendation.
- Formwork/jackets used must be leak proof to allow grout to be free flowing. Treat all form work with a suitable form release agent manufactured by Vexcon Chemicals if formwork is to be removed. Contact Vexcon Chemicals for product recommendation.
- Mix Certi-Vex Grout UW with clean water per package instructions.
- For uniform mix, use paddle or drum type mechanical mortar mixers. Add powder to the water and mix.
- Do not mix for more than 5 minutes. Place grout immediately after mixing.
- Do not mix more grout than can be placed within the allotted work time.
- Certi-Vex Grout UW can be poured or pumped through a flexible tube (minimum diameter of 2" or 50mm) to the lowest section of the form. The grout flow must be restricted during the pour so that water is not entrapped. The flexible tube can be raised to reduce back pressure; however, it should never be raised above the surface level of the grout.
- The temperature of the grout, the atmosphere and the configuration of the area to be grouted, can each or in combination affect the time during which grout can be successfully worked. To be safe, complete grouting within 20 minutes of the addition of water.

PLACEMENT THICKNESS

For underwater placement:

- Certi-Vex Grout UW can be extended with 25#, 3/8" pea gravel per 50# bag.
- Grout may be placed continuously when the annular spaces are between 1" and 6".
- Above water sections should be evaluated with ACI procedures. See "**Special Note**" section.

SPECIAL NOTES

- Temperatures between 50 and 80° F (10 and 27° C) have no effect on the grouting procedure. When temperatures fall below 50° F (10° C) around the area to be grouted, the mixing water and the dry grout should be warmed to not more than 80° F (27° C). Use ACI-306, "Standard Practice for Cold Weather Concreting" as a guide. When temperatures greater than 80° F (27° C) prevail, the grout and mixing water should be cooled as per ACI-305, "Standard Practice for Hot Weather Concreting".
- Do not add accelerators to Certi-Vex Grout UW, without consulting with Vexcon Chemicals.
- Use only in confined areas. Not designed for overlays or surface patching.
- Grouted surfaces that are exposed to the atmosphere should be treated with a clear curing compound, such as **Certi-Vex AC 1315** to prevent rapid drying and shrinkage cracking.
- Proper application of Vexcon material is the responsibility of the installer or user. Telephone consultation and/or field visits by Vexcon personnel are for the sole purpose of making technical recommendations only, and not for providing quality control or supervision on location.

CERTI-VEX GROUT UW: PERFORMANCE

Set Time ASTM C191		
Initial Set	120 minutes	
Final Set	160 minutes	
Composite		
Mixing Water	4.0 qts/50 lbs	
Method of Curing	ASTM C 1107	
Compressive Strength ASTM C109	psi	MPa
1 Day	4025	27.7
7 Days	7700	53.1
28 Days	10,250	70.7
Shrinkage/Expansion ASTM C 157		
28 Day Expansion	+0.05%	
Freeze-Thaw Resistance		
ASTM C 666	Excellent, Superior to Concrete	
Flexural Strength		
ASTM C 348	Resists Vibration	

PACKAGING

Certi-Vex Grout UW is available in 50-pound bags. Contact Vexcon directly to discuss your customized packaging requirements.

WATER REQUIREMENTS

<u>Consistency</u>	<u>Amount per 50 lb (22.7 kg) bag</u>
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Dry Pack	3.5-4.0 quarts clean potable water
Plastic	4.75 quarts clean potable water
Flowable	5.0 quarts clean potable water
Fluid	5.5 quarts clean potable water

In applications where the grout thickness is to be greater than 3" up to 50% clean, washed and dried 3/8" (9.5mm) pea gravel, based on the weight of the grout may be added. (25 lbs. of pea gravel to 50 lbs of Certi-Vex Grout UW)

YIELD

- One 50 lb. bag yields approximately 0.44 ft³ at 4.0 quarts of water.
- One 50 lb bag extended with 25 lbs. of washed pea gravel (3/8") yields approximately 0.60ft³ at 4.5 quarts of water.

SPECIFICATIONS

Certi-Vex Grout UW meets or exceeds the following specifications:

- ASTM-C-1107 Standard Specification for Packaged Dry Hydraulic Cement.
- CRD-C-621 Specifications For Non-Shrink Grout.
- CRD-C-614 Method of Test for Time of Settling of Grout Mixtures.
- ASTM-C-109 Standard Test for Compressive Strength of Hydraulic Cement Mortars.
- ASTM-C-266 (CRD-C-222) Standard Test for Compressive Strength of Hydraulic Cement by Gilmore Needle.
- ASTM-C-232 (CRD-C-79) Standard Method of Test for Bleeding of Concrete.
- ASTM-C-157 Standard Test Method for Length Change of Hardened Hydraulic-Cement, Mortar, and Concrete

HEALTH AND SAFETY

This product is a gray powdered solid. Continued inhalation of dust over a period of years without proper respirator and ventilation controls will cause silicosis and lung cancer. Used only with safety glasses, neoprene gloves and protective clothing recommended. Before using product, it is advisable to obtain a copy of the MSDS PR220 from your distributor or by contacting Vexcon Chemicals.

CONTACT US @

Additional product information, technical assistance and customer services are available by contacting Vexcon Chemicals directly or our distributors.

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WARRANTY

Vexcon warrants that the goods supplied hereunder shall be of its standard quality and shall conform in all material respects to the sample which has been made available for testing by buyer prior to sale. As the EXCLUSIVE REMEDY for any breach of this Limited Warranty, Vexcon shall replace nonconforming goods or refund the purchase price. Since methods of use and application are beyond Vexcon's control, this Limited Warranty IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THOSE CONCERNING MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS LIMITED WARRANTY IS ALSO IN LIEU OF ANY OTHER POSSIBLE LIABILITIES OF VEXCON, WHETHER ALLEGED TO ARISE BY AGREEMENT OR BY OPERATION OF LAW, RESPECTING THE SALE, APPLICATION, USE OR FUNCTION OF VEXCON'S PRODUCTS, INCLUDING BUT NOT LIMITED TO CLAIMS OR NEGLIGENCE, GROSS NEGLIGENCE, STRICT LIABILITY OR ANY OTHER TORT. IN NO EVENT SHALL VEXCON BE LIABLE FOR PERSONAL INJURY OR PROPERTY DAMAGE, REAL OR PERSONAL, ATTRIBUTED TO ITS PRODUCTS, NOR FOR ANY EXCAVATION, REMOVAL, REAPPLICATION, DOWN TIMES, CLEANUP, LOSS OF USE, LOSS OF OPPORTUNITY, LOSS OF MARKET VALUE, LOSS OF RENTAL VALUE OR FOR ANY LOSS OF PROFITS OR OTHER SPECIAL, INCIDENTAL, RESULTING, CONSEQUENTIAL OR EXEMPLARY DAMAGES. No person is authorized by Vexcon to assume for it any other liability of any kind in connection with the sale or use of products manufactured and sold by it, and there are no oral agreements or warranties collateral to or affecting any sale or use. All of the foregoing arises under the substantive law of Pennsylvania without regard to principles of conflicts of laws.