Azo-Grout™ 695

Hydrophilic Polyurethane Grout

Product Data Sheet

Product description

Azo-Grout™ 695 is a polyurethane grout designed to be used as a permanent waterstop system. It reacts with a broad range of water ratios to produce a strong, flexible foam or an elastomeric gel, depending on the amount of water present and the pressure. Azo-Grout 695 provides an effective means of stopping water seepage.

Azo-Grout 695 is a hydrophilic pre-polymer, which will react with up to eight times its weight in water. When reacted with water at a ratio of 1:1 water / Azo-Grout 695, the product is a 28-pcf (pound per cubic foot) tough foam with approximately 150 percent expansion. When reacted at a ratio of 8:1 water / Azo-Grout 695, the product is an elastic gel.

Table 1: Physical properties of uncured materials

	Azo-Grout™ 695	Measurement	Test method
Color	yellow		visual
Specific gravity at 77°F (25°C)	1.1		ASTM D891
Viscosity at 77°F (25°C)	2,100-2,400	centipoise	ASTM D1638
Storage stability	12	months	
pH	not established		
Toxicity	non-toxic		
Hazard class	not regulated		
Solids	100	percent	
Corrosiveness	non-corrosive		
Flash point	>220 (>104.44)	degress Fahrenheit (Celsius)	

Table 2: Physical properties of cured materials

	Water ratio				Measurement	Test method
	1:1	1:3	1:5	1:8		
Tensile strength	85	15.2	5.6	1.0	psi	ASTM D638
Elongation	150	138.4	107.7	39.6	percent	ASTM D638
Physical form	resilient foam	expansive gel	expansive gel	soft gel		

Note: Table 2 represents physical properties at a range of resin to water ratios. These values were generated while simulating a situation where Azo-Grout™ 695 was applied under pressure similar to typical field condition applications.

CE standards certification

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Processing parameters

The reactivity of Azo-Grout 695 with water will vary with the amount of moisture present and the component temperatures. Table 3 illustrates the reactivity of Azo-Grout 695 at various grout to water ratios when exposed to various temperatures at the time of injection.

Water outside normal pH ranges may have an adverse effect. Due to the great diversity of environments in which Azo-Grout 695 can be subjected, it is recommended that testing be performed in each special, environmental application case.

Table 3: Temperature effects on reaction time at various rates

Temperature		Ratio		
Degrees Fahrenheit	**Degrees Celsius**	**1:1**	**1:5**	**1:10**
70	21	46 seconds	48 seconds	58 seconds
80	27	39 seconds	36 seconds	38 seconds
90	32	28 seconds	28 seconds	28 seconds

Site preparation

Job site preparation depends on the type of injection method that is selected. Three methods of injection are described below along with the site preparation.

Crack injection: Prepare the work site by drilling holes at approximately 45 degree angles to intersect the application site at about half the depth of the fissure. Holes are typically drilled on opposing sides of the application site in an alternating pattern. The spacing is dependent on the crack size. Flush drill waste from holes to ensure a strong bond prior to installing packers. Securely install injection packers in the pre-drilled holes and clean the application site of extraneous and loose materials. Azo-Grout 695 can be injected directly into the construction joints of manholes at a 1 to 1 ratio with water.

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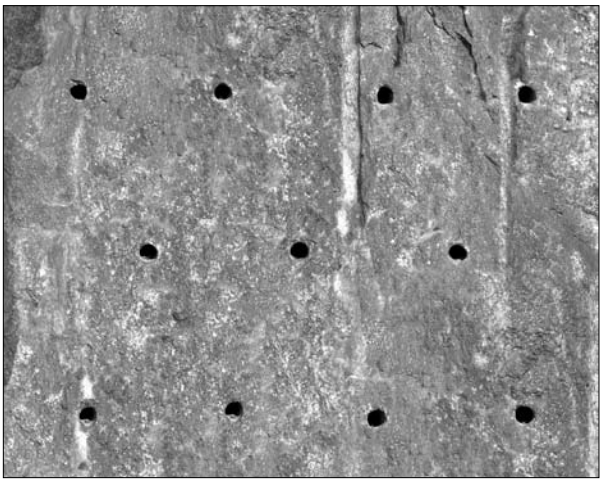

Gel encapsulation: Gel encapsulation is used for below-grade applications where it is advantageous to use Azo-Grout 695 as a seal membrane wrap on the outside surface of a structure. Holes are drilled completely through the structure to allow injection to take place from the inside. The pattern and spacing of holes may vary depending on each repair project. A common drill pattern is shown in the picture above. Packers are installed and injection begins in one corner. Continue injecting in one packer until the grout material penetrates the surrounding drill holes (open packers).

Activated oakum technique: A method to help reduce or eliminate heavy water inflow in wide cracks or joints is called the activated oakum technique. The process is started by saturating oakum rope or industrial absorbent towels in the grout and then soaking the rope or towels in water. The grout will begin reacting once dipped in the water. Place the saturated pieces into the leaking crack or joint. Push deeply into the crevice using a blunt instrument. Once the water infiltration has been substantially reduced, drill holes and proceed with either the encapsulation or the crack injection method as mentioned previously.

Application method

This product can be injected as a single component when sufficient water is present. It is recommended in certain situations to inject water as a second component by means of a mixing/metering machine. The components are pumped into the injection packers generally beginning with the lowest. Continue introducing grout into the packer until material reaches the next highest packer, then move to the next injection packer and continue. It is recommended to move back and repeat injection on previous packers until each port refuses to take more material. Once the injected material has cured at the application site, clean the site. Water blasting is a recommended technique for cleaning the concrete.

It is important to apply a sufficient amount of Azo-Grout 695 to allow a satisfactory ratio to be obtained for maximum effectiveness. A visual inspection of the injection material penetrating the surrounding drill holes will determine the consistency of the reacted material.

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Precautions

This material is intended to be used by trained professionals with the proper equipment. The following safety measures are recommended:

- Wear protective gloves, clothing, goggles, hearing protection for noise reduction and hard hats for falling debris.
- Do not eat, drink or smoke while in active contact with these materials.
- Avoid skin contact.
- Wash hands thoroughly with soap and cool water. Never wash the skin with a solvent.
- Anyone experiencing difficulty breathing when working with these materials or showing an allergic reaction should seek fresh air immediately. Consult a physician if symptoms persist.

Since Azo-Grout 695 is a reactive component, it is important to clean the mixer and appropriate mechanical components of residue when injection stops. The recommended solvent for cleaning the pumps, tools and equipment is Azo-Purge MP2™.

Material storage

Open containers of material should be used quickly to avoid moisture contamination. If a container needs to be resealed, it should be blanketed with nitrogen or dry air [less than -40°F (-40°C) dew point] to minimize water exposure. Refer to the material safety data sheets (MSDS) for further information regarding these materials. All spills of Azo-Grout 695 should be cleaned up by absorbing the substance into an inert material and transferring it to an open top drum. Do not seal the waste drums for 24 hours to allow the Azo-Grout 695 to react completely. Dispose of waste material in accordance with state and local regulations.

Packaging

Azo-Grout 695 is available in 5-gallon pails at 45 pounds and 55-gallon drums at 463 pounds.

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