

## Hydrophobic Polyurethane Grout



### Product description

Azo-Grout™ 222 / Azo-Nate™ 300 is a two-part, polyurethane system suitable for use in the structural repair of cracks in concrete structures, as well as sealing water leakage problems. The product from the Azo-Grout 222 / Azo-Nate 300 reaction is a dense, flexible solid that creates a hydrophobic elastic seal to allow movement of the existing crack, while eliminating additional crack formation.

Azo-Grout 222 and Azo-Nate 300 do not contain any solvents or volatile materials. The low viscosity of

these materials and their initial mixture permits easy installation and injection of the product for maximum effectiveness. The reaction of Azo-Grout 222 and Azo-Nate 300 can be accelerated by the use of Azo-Cat™ 24 (see Table 4).

The compressive strength of the final product has been determined according to ASTM D695. The results of this testing are shown in Table 3.

**Table 1: Physical properties of uncured materials**

	Azo-Grout™ 222	Azo-Nate™ 300	Measurement	Test method
Color	yellow	brown		visual
Specific gravity	1.05	1.23		ASTM D891
Viscosity at 77°F (25°C)	200-250	175-225	centipoise	ASTM D2196
Storage stability	12	12	months	
Mix ratio	100	50	by volume	
Mix ratio	100	58	by weight	
pH	not established	not established		
Toxicity	see SDS	see SDS		
Hazard class	not regulated	9		
Solids	100	100	percent	
Corrosiveness	non-corrosive	non-corrosive		
Flash point	191 (88)	390 (199)	degrees Fahrenheit (Celsius)	

**Table 2: Physical properties of cured materials**

	Value	Measurement	Test method
Density	68.7 (1.1)	lbs/ft3 (g/cc)	
Hardness after 24 hrs.	68-78	Shore A	ASTM D2240
Tensile strength	1,550 ± 100	psi	ASTM D638
Elongation	90 ± 10	percent	ASTM D638
Pot life at 68°F (20°C)	50-60	minutes	
Shrinkage by weight	0	percent	in-house
Shrinkage by volume	~ 5	percent	in-house
Toxicity	non-toxic		

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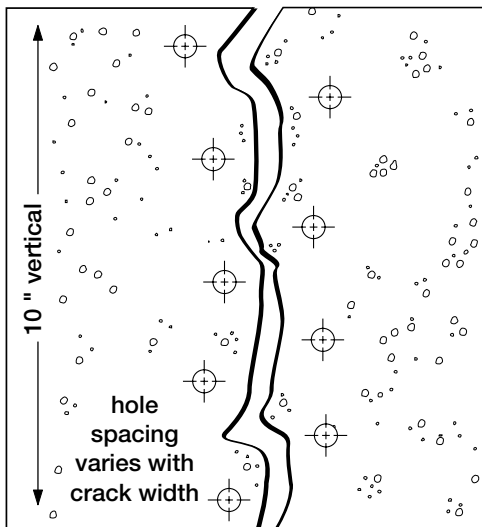
**Table 3: Test results**

Deformation	Compressive strength
5%	22.5 psi
10%	75 psi
15%	122.5 psi
20%	185 psi

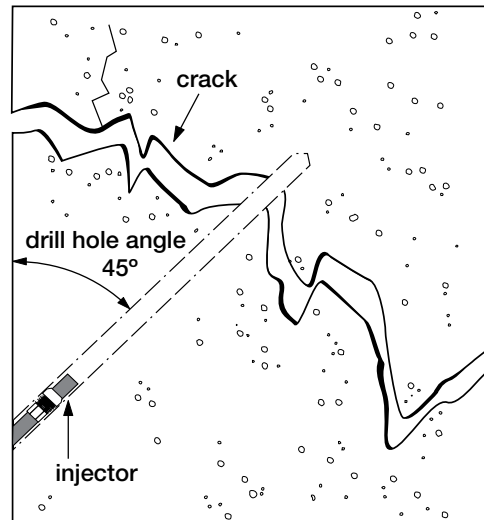
### Site preparation

Prepare the work site by drilling holes at approximately 45 degree angles to intersect the application site at about half the depth of the substrate. Holes are typically drilled on opposing sides of the application site in an alternating pattern and the spacing is dependent on the crack size. Flush drill waste from the hole to ensure a strong bond prior to installing packers. Securely install the injection packers in the pre-drilled holes and clean the application site of extraneous and loose materials.

**Figure 1: Drilling**



**Figure 2: Injecting materials**



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### Grout preparation

Perform a pre-blend of the Azo-Grout 222 and Azo-Nate 300 to ensure that the gel time meets the requirements for the particular application. An on-site catalyst level check to adjust the reaction time is recommended. Azo-Cat 24 can be added to the Azo-Grout 222 prior to mixing with Azo-Nate 300 to accelerate the reaction time. Table 4 demonstrates the effect of the Azo-Cat 24 level on gel time. Note that the temperature of the components will also affect the reaction time; hotter materials will decrease the reaction or working time, and colder materials will increase the reaction time. Furthermore, pH and other factors present within the application site may affect the reaction or work time.

**Table 4: Catalyst effect on reaction time**

Azo-Cat™ 24 level in Azo-Grout™ 222	Gel time
0%	60 minutes
0.2%	50 minutes
0.4%	12 minutes
0.6%	11 minutes
0.8%	8 minutes
1.0%	6.5 minutes

### Application method

Azo-Grout 222 / Azo-Nate 300 can be installed using multi-component pumps or can be premixed and injected through a single-component pump. When premixing, caution should be taken to only mix the amount to be used in 45-60 minutes for uncatalyzed material (catalyzed material will necessitate shorter use constraints). The mix ratio of the material is 100 parts by weight or volume of Azo-Grout 222 to 58 parts by weight or 50 parts by volume of the Azo-Nate 300.

The components are pumped into the injection packers generally beginning with the lowest. Continue introducing thoroughly mixed material into the packer until the material reaches the next highest packer; then move up to the next injection site and continue application.

It is a recommended procedure to move back and repeat injection on several previous packers until each port refuses to take more material. Once the injected material has cured at the application site, clean and finish the site in an appropriate manner. Water blasting is a recommended technique for cleaning the concrete.

### 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.

Note: Depending on the scope of the project, it may be advisable to consult a manufacturer's representative during installation.

See Technical Bulletin 1 for more information about application and procedures.

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### 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 safety data sheets (SDS) for further information regarding these materials. All spills of Azo-Grout 222 should be cleaned up by absorbing the grout 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 222 to react completely. Dispose of waste material in accordance with state and local regulations.

### Packaging

Azo-Grout 222 is available in 5-gallon pails at 45 pounds and 55-gallon drums at 463 pounds.

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