

## Hydrophobic Polyurethane Grout



### Product description

Azo-Grout™ 424 is a flexible, hydrophobic polyurethane designed to stop water infiltration in concrete structures. Azo-Grout™ 424 with Azo-Cat™ 24 is a solvent-free, methyldiphenyl isocyanate (MDI)-based prepolymer, which will react with water. When cured in a free-rise situation, it will expand to about 750 percent of its original volume and yield to a 7-8 pound per cubic foot (pcf) foam.

Water Quality Association has tested Azo-Grout 424 in accordance with the National Sanitation Federation (NSF) standard 61 and has approved this material for contact with potable water.



For NSF/ANSI/CAN 61 use restrictions visit: [www.wqa.org](http://www.wqa.org)

### Application range

Azo-Grout™ 424 is used for stopping water infiltration in the following applications:



#### Concrete crack injection

- Flowing water leaks
- Dry cracks
- Wet cracks
- Honeycombed concrete areas

#### Underground parking garages

- Expansion joints
- Sealing pipe openings
- Beam joints

#### Municipal and utility facilities

- Wastewater containment tanks
- Cracks and joints

#### Concrete dams and powerhouse galleys

- Flowing water leaks
- Cracks and joints

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

	Azo-Grout™ 424	Measurement	Test method
Color	pale yellow		visual
Specific gravity	1.04 - 1.07		ASTM D891
Viscosity at 77°F (25°C)	500 ± 100	centipoise	ASTM D2196
Storage stability	12	months	
pH	not established		
Toxicity	see SDS		
Hazard class	not regulated		
Solids	100	percent	
Corrosiveness	non-corrosive		
Flash point	390 (199)	Fahrenheit (Celsius)	

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

	Azo-Grout™ 424	Measurement	Test method
Tensile strength	160 ± 20	psi	ASTM D638
Elongation	65 ± 20	percent	ASTM D638
Shrinkage by weight	0	percent	in-house
Shrinkage by volume	3	percent	in-house
Toxicity	non-toxic		

## 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 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 the hole prior to installing packers. Securely install injection packers in the pre-drilled holes.



## Hand-mix reactivity check

A pre-blend reactivity test can be performed by hand mixing in cups. Azo-Cat™ 24 can be added to Azo-Grout 424 prior to mixing with water to accelerate the reaction time. The recommended procedure for a reactivity check is:

100 parts by weight of Azo-Grout™ 424  
 10 parts by weight of Azo-Cat™ 24  
 5 parts by weight of water

- Add the Azo-Cat™ 24 to the Azo-Grout™ 424 and homogenize.
- Add the water and mix thoroughly.
- Using the start time as the time mixing begins after the addition of the water:
  1. Determine the cream time: the time in which the material just begins to foam.
  2. Determine the tack-free time: the time in which the surface of the material is no longer tacky.

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**Table 3: Effect of Azo-Cat™ 24 on gel time 77°F (25°C)**

Azo-Cat™ 24 weight percent	Start of rise	Top of rise	Product
1%	110 seconds	8 minutes	resilient foam
3%	40 seconds	5 minutes	resilient foam
10%	15 seconds	1.5 minutes	resilient foam

Table 3 indicates how varying amounts of Azo-Cat™ 24 affect 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.

### Application method

After performing the hand-mix reactivity check, mix the proper amount of Azo-Cat™ 24 to Azo-Grout™ 424 to obtain the desired gel time shown in Table 3. As noted, temperatures of the repair area at the job site may also affect actual reaction speed. Start with a quantity of material that can be applied in a reasonable amount of time. Inject the mixture using a single-component injection pump. If the crack is dry, inject water through each packer first using a separate pump. The use of a second pump for injecting water reduces the risk of having a reaction, resulting in a clogged pump.

Flush the pump and all mechanical components of all residual grout when injection is finished with Azo-Purge MP2™.

### 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 and 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°C (-40°F) dew point] to minimize water exposure. Refer to the safety data sheets (SDS) for further information regarding these materials. All spills of Azo-Grout 424 should be cleaned up by absorbing the grout into an inert material and then transferring the mixture to an open top drum. Do not seal the waste drums for 24 hours to allow the Azo-Grout 424 to react completely. Dispose of waste material in accordance with state and local regulations.

## Packaging

Azo-Grout 424 is available in 5-gallon pails at 45 pounds and 55-gallon drums at 463 pounds.

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