

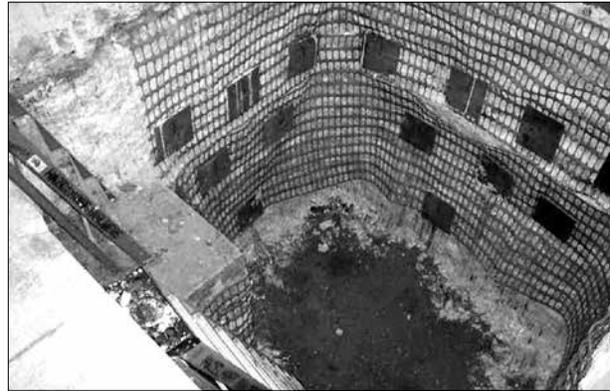
Hydrophobic Polyurethane Grout



Product description

Azo-Grout™ 443 is a low viscosity, hydrophobic polyurethane used for soil stabilization in a variety of water-bearing soils. The low viscosity characteristics allow the material to penetrate the earth, adding structure and stabilization by encapsulating the granules and forming a rock-like mass.

Water Quality Association has tested Azo-Grout 443 in accordance with the National Sanitation Federation (NSF) standard 61 and has approved this material for contact with potable water.



Application range

Azo-Grout 443 is used for stabilizing ground and hardening quicksand in the following applications:

Building foundations

- Shoring excavations
- Perimeter areas of deep-dug holes

Soil stabilization

- River and lake embankments
- Helipads for helicopters
- Sand trap for golf courses

Underground repair

- Mines
- Tunnels
- Subways



For NSF/ANSI 61 use restrictions visit:
www.wqa.org

Table 1: Physical properties of uncured materials

| | Azo-Grout™ 443 | Measurement | Test method |
|--------------------------|-----------------|------------------------------|-------------|
| Color | pale yellow | | visual |
| Specific gravity | 1.14 -1.18 | | ASTM D891 |
| Viscosity at 77°F (25°C) | 110 ± 30 | 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) | degrees Fahrenheit (Celsius) | |

Hydrophobic Polyurethane Grout



Table 2: Physical properties of cured materials

| | Value | Measurement | Test method |
|---|-----------------------|----------------------------|-------------|
| Free-rise density | 9 ± 1 (0.144 ± 0.016) | lbs/ft ³ (g/cc) | |
| Tensile strength | 250 ± 100 | psi | ASTM D638 |
| Elongation | 5-10 | percent | ASTM D638 |
| Shrinkage by weight | 0 | percent | in-house |
| Shrinkage by volume | 0 | percent | in-house |
| Toxicity | non-toxic | | |
| Compression of soil stabilized material | > 1,500 | psi | |

Site preparation

In situations where sand, loam or clay need to be stabilized, Azo-Grout 443 can be utilized. These applications may exist on the outside of tunnels, footings for bridges or in the utility shafts of dams. In many projects, the method of stabilizing the surrounding soil is by simply drilling holes through the concrete and injecting the grout at pre-determined intervals. Each individual situation requires thorough evaluation on how to best add structure to the soil. An illustration of one application method is shown in Figure 3.

Hand-Mix Reactivity Check

A pre-blend reactivity test can be performed by hand mixing in cups. Azo-Cat™ 25 can be added to Azo-Grout 443 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™ 443
10 parts by weight of Azo-Cat™ 25
5 parts by weight of water

- Add the Azo-Cat™ 25 to the Azo-Grout™ 443 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.

Figure 3: Soil stabilization



Hydrophobic Polyurethane Grout



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

| Azo-Cat™ 25 level | Cream time | Gel time | Product |
|-------------------|------------|-------------|-----------------|
| 2% | 50 seconds | 140 seconds | structural foam |
| 4% | 30 seconds | 90 seconds | structural foam |
| 8% | 20 seconds | 45 seconds | structural foam |
| 10% | 17 seconds | 40 seconds | structural foam |

Table 3 indicates how varying amounts of Azo-Cat™ 25 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

Premix the amount of catalyst needed for the desired gel time. Start with a quantity of material that can be used in a reasonable amount of time. Inject Azo-Grout 443 using a single-component injection pump. If the soil is dry, inject water 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.

Hydrophobic Polyurethane Grout



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 443 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 443 to react completely. Dispose of waste material in accordance with state and local regulations.

Packaging

Azo-Grout 443 is available in 5-gallon pails at 45 pounds and 55-gallon drums at 463 pounds.

WARRANTY The information contained in this document is to assist customers in determining whether our products are suitable for their applications. Our products are intended for sale to industrial and commercial customers. The customer must inspect and test our products before use, and satisfy themselves as to the contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warranty of merchantability or fitness, nor is protection from any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials, and in no event shall we be liable for special, incidental or consequential damages.