AVANTI
Stop leaks. Stabilize soil.
Control groundwater. Permanently.

TECHNICAL DATA SHEET

AV-100® Chemical Grout

Granular / Liquid Acrylamide | Chemically Reactive Gel

Description

AV-100® Chemical Grout, a high-performance acrylamide grout, is designed to prevent water infiltration in manholes, mainlines, laterals, tunnels, mines, and other underground structures. It forms a durable, long-lasting water barrier on the exterior of these structures. This ultra-low viscosity, chemically reactive gel can successfully penetrate soils and rock, and cures in controllable set times from seconds to several hours. Once cured, AV-100 not only creates an effective water barrier but also offers excellent soil stabilization. AV-100 meets the requirements as an acrylamide-based gel in accordance with ASTM F2304 Section 6.3.1, ASTM F2454 Section 5.3.1, and ASTM F2414 Section 4.2.

Applications

- Stops water infiltration into manholes, sanitary and storm sewer mainlines, joints, laterals, tunnels, mines, and various other geotechnical applications and underground structures by stabilizing the external substrate
- Permeation grouting of non-cohesive soils for groundwater control and soil improvement
- Ground modification for soil improvement, encapsulation, or groundwater control

Features & Benefits

- Over 50+ years of safe and successful documented use
- Ultra-low viscosity chemistry, 1-2 cP (water=1 cP)
- Controllable reaction times from seconds to hours
- Will not undergo syneresis
- Half-life of 362 years at 20% grout concentration determined by DOE
- Greater longevity compared to silicates
- Estimated service life of 50 years at grout concentrations ≥ 12%
- Available in granular or liquid form
- Available as tested and certified by WQA against NSF/ANSI/CAN 61 Drinking Water System Component
- Multiple grouting techniques including Tube-A-Manchette (TAM), probe, curtain and remote packer equipment
- AV-100 meets the requirements as an acrylamide-based gel in accordance with ASTM F2304 Section 6.3.1, ASTM F2454 Section 5.3.1, and ASTM F2414 Section 4.

Required Products

- AV-101® Catalyst T+ (Triethanolamine)
- AV-102® Catalyst AP (Ammonium Persulfate) **or** AV-103® Catalyst SP (Sodium Persulfate)

How AV-100 Works

AV-100 and its catalysts are injected using a stainless steel, dual-component pump from two tanks (see Mix Guidelines). When the contents of both tanks are combined, free radicals are generated that initiate the Free Radical Polymerization process of the AV-100 monomer grouts to form a polyacrylamide copolymer. Injecting a 1:1 ratio into the soil or external substrate will produce a strong, impermeable gel. Various additives can be used to adjust the reaction process and the properties of the cured gel. For optimal performance, AV-100 should be applied at a solids concentration of 10% or higher, with concentrations up to 20% are recommended for achieving greater gel strength.

Optional Additives

- AV-105 Gel Guard™ – reduces freezing point
- Potassium Ferricyanide (KFe) – extends gel time
- AV-257 Icoset™ – increases adhesive qualities, polymer density, and solid content
- Tracer Dyes – used for tracking grout flow

Packaging – product is packaged by net weight

Granular

- Bag – 50 lb. (22.6 kg)

Liquid

- Pail – 43 lb. (19.5 kg)
- Drum – 130 lb. (58.9 kg)
- Tote – 2,300 lb. (1,043.3 kg)

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Physical Properties*

UNCURED (granular)	
Appearance	White granules
Specific Gravity	1.122 @ 86°F (30°C) ±3%
Toxicological	See Safety Data Sheet
UNCURED (liquid)	
Appearance	Clear water-white liquid
Viscosity (water=1)	1 – 2 cP @ 72°F (22°C) in solution
Specific Gravity	1.03 @ 72°F (22°C) ± 3%
Density	8.66 lb./gal ± 3% (1.038 kg/L ± 3%)
Toxicological	See Safety Data Sheet
CURED	
Appearance	Clear gel mass/translucent
Hydraulic Conductivity	< 10-8 m/s
Toxicity	Non-toxic

** Laboratory results*

Mix Procedure Example for AV-100 Chemical Grout (50-gal. mix at 12% Concentration with 1% catalysts)
Percentage of catalysts are calculated on total batch mix (Tank A + Tank B).
See detailed Mixing Guidelines for various acrylic monomer grout concentrations and tank sizes at avantigrout.com.

Grout Tank (Tank A)

1. Add 10 gallons (37.8 L) of water.
2. Add one 50 lb. bag (granules) or one 130 lb. drum (liquid) of AV-100 to tank.
3. Add 0.5 gallon (1.9 L) of AV-101® Catalyst T+.
4. Fill with water up to the 25-gallon mark.
5. Mix thoroughly.

Note: Ingredients are only compatible with stainless steel or plastic.

Catalyst Tank (Tank B)

1. Add 10 gallons (37.8 L) of water.
2. Add 5 lb. (2.27 kg) of AV-102® Catalyst AP or AV-103® Catalyst SP.
3. Fill with water up to the 25-gallon mark.
4. Mix thoroughly.

IMPORTANT: At elevated temperatures, AV-102 or AV-103 dissolved in water loses its effectiveness rapidly.

Performance
Performance may be affected by site conditions. The temperature of the material will affect the reaction time. Dissolving granular Acrylamide in water causes an endothermic reaction which temporarily lowers the temperature of the grout tank. Longer gel times might be experienced due to the lower grout tank temperature. The temperature of the grout tank will acclimatize over time to the surrounding area. If site temperatures are low, warm up the product to the recommended operating range of 60°F to 100°F (16°C to 38°C). A decrease in pH may lengthen the cure time. High levels of minerals or metals in the mix water may negatively impact gel time. AV-100 grout may expand or swell after curing when exposed to water. The extent of expansion will depend on the grout concentration and/or the confining pressures.

Cleaning
If cross contamination has occurred, remove all cured gel, dissolve baking soda in water, and rinse system thoroughly followed by multiple clean water rinses. Dispose of water in accordance with local, regional, national and international regulations.

Storage
Store in temperatures within or near 45°F – 95°F (7°C – 35°C) in a dry atmosphere. Keep out of direct sunlight.

Safety
Use of AV-100 is authorized by Avanti International only after completion of the required Safe Operating Practices Program (SOPP). The SOPP can be found at avantigrout.com. Always use OSHA-approved personal protective equipment (PPE). Refer to the SDS for complete safety precautions. The Safety Data Sheets and Mixing Guidelines are available 24/7 at avantigrout.com.

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Shipping – Motor and Air Freight available

- Hazard class 6.1
- UN 2074 (for granular)
- UN 3426 (for liquid)

Notice

The data, information and statements contained herein are believed to be reliable but are not construed as a warranty or representation for which Avanti International assumes any legal responsibility. Since field conditions vary widely, users must undertake sufficient verification and testing to determine the suitability of any product or process mentioned in this or any other written material from Avanti for their own particular use. NO WARRANTY OF SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE. In no case shall Avanti International be liable for consequential, special, or indirect damages resulting from the use or handling of this product.

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