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

TECHNICAL DATA SHEET

AV-254 Gelseal™

Hydrophilic Polyurethane Gel

Description

AV-254 Gelseal™ is a versatile, single-component prepolymer injection resin. AV-254 is activated by moisture/water and has excellent permeation properties when injected into soils. It quickly permeates the soil and cures to create an effective water barrier while providing superb soil stabilization.

Applications

- Stops water infiltration into manholes, storm vaults, tunnels, mines, and various other geotechnical applications and underground structures by creating an impermeable solid and stabilizing external substrate
- Ground modification/slope stability for prevention of landslides, erosion, or any place where site conditions or project requirements dictate modification of the existing soil properties
- Permeation grouting of non-cohesive soils for water control and soil improvement

Features & Benefits

- Five gallons of material will make up to 45 gallons of active solution
- Solvent-free system
- Non-toxic
- Multiple grouting techniques including probe and curtain grouting

How AV-254 Works

AV-254 should be injected using a multi-component variable ratio pump. Two containers are needed: one for water, one for AV-254. Injecting at an 8:1 water to AV-254 ratio into the soil or external substrate will produce a strong gel/soil matrix. Injecting at a 1:1 water to AV-254 ratio will produce a very resilient foam. Optional additives are available to modify the cured gel characteristics.

Optional Additives

- AV-105 Gel Guard™ – reduces freezing point
- AV-203 Multicat™ – cream and gel time accelerator
- 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

Grout

- Jug – 8.5 lbs. (3.90 kg)
- Pail – 43 lbs. (19.5 kg)
- Drum – 473 lbs. (214.5 kg)

Optional Catalyst

- Container - 78 fl. oz. (2.31 L)

Physical Properties*

UNCURED	
Appearance	Pale yellow liquid
Viscosity (water=1)	175–450 cP @ 72°F (22°C); approx.10 cP in solution
Flash Point	>200°F (>93°C)
Specific Gravity (water=1)	1.034 @ 72°F (22°C) ± 3%
Density	8.63 lbs. per gal. ± 3% (1.034 kg/L ± 3%)
CURED	
Appearance	Milky colored, flexible
Compressive Strength	*Consult Avanti Representative*
Toxicity	Non-toxic

** Laboratory results*

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Mix Guidelines
Gently shake or stir container(s) before using. Pre-mixing is not required. Perform the standard cup test with site water to determine the desired properties. An 8:1 water to AV-254 ratio produces a strong gel. AV-254 resin is highly hydrophilic; when a container is left open, the resin will slowly react with moisture from the air.

Performance - General
For the best results, use AV-254 between 60°F – 72°F (16°C – 22°C). Flush equipment with AV-208 Technical Grade Acetone™ before and after use to remove moisture and clean equipment. Performance will be influenced by site conditions. If site temperatures are low, use a heat source to warm to ~72°F (22°C). Do not use open flame as a heat source. At temperatures of 45°F (7°C), the viscosity of the product is significantly increased, making the miscibility with the reaction-water more difficult. The times presented are laboratory results. Actual results may be different in the field due to site water used or site conditions. Perform a standard cup test with site water to determine the desired reaction time.

Performance Using AV-254
See Table below for approximate Cream/Gel Times for AV-254.

Cream / Gel (Cure) Times for AV-254 Gelseal (Min:Sec) [1,2]				
		1:1 Water/AV-254	**5:1 Water/AV-254**	**8:1 Water/AV-254**
Temperature	**40°F/4°C**	0:44 / 2:53	1:01 / 2:19	1:40 / 2:49
	50°F/10°C	0:40 / 2:18	0:50 / 1:42	1:24 / 2:11
	60°F/15°C	0:34 / 1:27	0:42 / 1:21	1:08 / 1:38
	70°F/21°C	0:21 / 0:58	0:33 / 1:00	0:46 / 1:26
	80°F/27°C	0:13 / 0:49	0:21 / 0:47	0:38 / 1:00

**Laboratory results*
Note: Cream time is the visual viscosity increase with grout to water ratios above 1:1.
1. Resin and water temperatures may affect cream / gel times.
2. Actual results may be different in the field due to site water used or site conditions.

Performance When Adding AV-203 Multicat
Note: AV-203 should NOT be used when injecting at ratios higher than 1:1 water to AV-254.
AV-203 Multicat may be used at low temperatures and/or high flow water cut-off situations at a maximum of 78 fl. oz. of AV-203 per pail of AV-254 when injected at 1:1 ratio with water. When AV-203 is used to slow down high waterflows, it should not be used as a stand-alone solution but in conjunction with any of Avanti's hydrophobic or hydrophilic polyurethane resins. See Table below for approximate Cream/Gel (Cure) Times AV-254 used with AV-203.

Cream / Gel (Cure) Times for AV-254 Gelseal + AV-203 Multicat (Min:Sec) [1,2]			
		1:1 Water/AV-254 + Half Catalyst (Resin:Catalyst, 16:1)	**1:1 Water/AV-254 + Full Catalyst (Resin:Catalyst, 8:1)**
Temperature	**40°F/4°C**	0:24 / 0:58	0:18 / 0:49
	50°F/10°C	0:21 / 0:54	0:16 / 0:35
	60°F/15°C	0:16 / 0:46	0:14 / 0:30

**Laboratory results*
Note: Cream time is visual viscosity increase with grout to water ratios above 1:1.
1. Resin and water temperatures may affect cream / gel times.
2. Actual results may be different in the field due to site water used or site conditions.

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Cleaning
Do not use water to clean equipment. AV-254 is water activated and will setup or cure in your hoses and equipment. Flush with AV-284 Pump Wash™ to remove uncured resin in hoses and equipment. Purge equipment and hoses with AV-208 Technical Grade Acetone™ before use to remove any remaining AV-284 and moisture.

- AV-208 Technical Grade Acetone™– removes moisture from equipment (see Performance section)
- AV-222 Cleaner™– removes cured resin from equipment
- AV-284 Pump Wash™ – removes uncured resin from pump hose

Storage
Store in temperatures within or near 45°F – 95°F (7°C – 35°C) in a dry atmosphere. Keep container tightly closed when not in use. Packaged under dry nitrogen to keep moisture out and extend shelf life. Storage of opened/partial containers at the lower range of the recommended storage temperature is not advised. The moisture in the air of the head space above a partial container might condensate and might cause the grout to premature gel in the container. Avanti does not recommend storing full or partially filled containers of AV-254 that have been catalyzed or mixed with AV-203. Catalyzed grout may react over time or if not stored correctly.

Safety
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.

Shipping – Motor and Air Freight available

- Not regulated under US DOT Regulations

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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