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

TECHNICAL DATA SHEET

AV-550 Soil Strengthener™

with AV-551 Soil Strengthener Cat™ Catalyst

Hydrophobic Polyurethane Grout

Description

AV-550 Soil Strengthener™ is designed to permeate and stabilize various types of soil. This hydrophobic polyurethane increases the load bearing capacity of permeable soil by greatly increasing the cohesion between soil particles and by filling void areas in the soil. The uncured resin is a dark brown liquid which reacts with water. AV-550 is typically used with AV-551 Soil Strengthener Cat™ to control the cure time. When the reaction occurs, a slight expansion of the resin is noticeable, and the material quickly cures which is impervious to mild corrosive environments and microorganisms.

Applications

- Stabilizes soil to prevent soil erosion, sink holes, sinking foundations, and infiltration of water and silty soils under concrete slabs, roadways, and other structures

Features & Benefits

- Solvent-free system
- Controllable reaction time with AV-551 Soil Strengthener Cat
- Withstands wet/dry cycles
- Extremely low viscosity
- Multiple grouting techniques including Probe Grouting and Tube-a-Manchette Grouting

Required Products

- AV-551 Soil Strengthener Cat™ (catalyst)

How AV-550 Works

AV-550 uncured resin must be injected into a confined soil. Permeate the soil void space with unreacted resin. The resin will react with moisture to form a resilient seal accomplished by three mechanisms: first the resin seeks out water in the space and pores of the soil particles and adheres to the particles' surface. Second, the resin/water reaction begins to expand forming a tight compressive seal in the confined soil and third the network of compressed grout material within all the soil particles establishes a mechanical lock. NOTE: moisture activated resins require a minimum amount of water/moisture. When in doubt whether not enough or no water/moisture is present in the substrate to be sealed, sufficient water should be flushed through the substrate to be sealed before injecting AV-550.

Packaging – product is packaged by net weight

Grout

- Jug – 8.8 lbs. (4.0 kg)
- Pail – 44 lbs. (20 kg)
- Drum – 484 lbs. (220 kg)

Catalyst

- Container - 32 fl. oz. (.95 L)
- Pail – 37.5 lbs. (17.0 kg)

Physical Properties*

UNCURED AV-550	
Appearance	Amber liquid
Corrosiveness	Non-Corrosive
Viscosity (water=1)	20-30 cP @ 68°F (20°C)
Flash Point	C.O.C. 288°F (142°C)
Solids	90 – 98%
Specific Gravity (water=1)	1.122 @ 72°F (22°C) ± 3%
Density	9.36 lbs./gal ± 3% 1,122 kg/m^3 ±3%
CURED AV-550	
Tensile Strength	170 psi (1,172 kPa)
Compressive Strength	1648 psi (11.362 MPa) in sand

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Bending Strength	369 psi 2,544 kPa ()
Bond Strength (bonding)	28 psi (193 kPa)
Bond Strength (shear)	326 psi (2,247 kPa)
Density	1,122 kg/m^3 (9.36 lbs./gal)
Coefficient of Permeability	4.98x10^{-6}
Shrinkage	0%
Toxicity	Non-toxic
AV-551	
Appearance	Yellowish liquid
Viscosity (water=1)	5 - 10 cP @ 68°F (20°C)
Flash Point	>255°F (>124°C)

** Laboratory results*

†Cured properties vary depending on application and field conditions.

Mix Guidelines

Gently shake or stir container(s) before using. Typically, one container of AV-551 is used per pail of AV 550 Soil Strengthener. Depending on the desired reaction time, AV-551 may be doubled (see Cream / Gel (Cure) Times chart below). Mix thoroughly, but slowly, to avoid creating bubbles in the solution. Perform a standard cup test with site water to determine the desired reaction time.

Cream / Gel (Cure) Times for AV-550 Soil Strengthener (Min:Sec)				
		Half Catalyst (16 oz.)	**Full Catalyst (32 oz.)**	**Double Catalyst (64 oz.)**
Temperature	40°F/4°C	1:23 / 3:17	1:01 / 2:08	0:39 / 1:38
	50°F/10°C	1:04 / 2:30	0:49 / 1:53	0:35 / 1:32
	60°F/15°C	0:54 / 2:06	0:42 / 1:31	0:33 / 1:14
	70°F/21°C	0:53 / 2:01	0:36 / 1:26	0:27 / 1:08
	80°F/27°C	0:50 / 1:51	0:31 / 1:22	0:24 / 0:56

**Laboratory results*

Note: Do not use more than double AV-551 catalyst per pail of AV-550.

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

For the best results, use AV-550 between 60°F – 90°F (16°C – 32°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) and/or increase catalyst amount by 1% – 2%. Do not exceed more than 64 fl. oz. (2 L) of AV-551 per pail of AV-550 resin. 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. Excess amounts of AV-551 may adversely affect performance. Catalyzed resin will react with moisture from the air, use product soon after mixing. 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.

Cleaning

Do not use water to clean equipment. AV-550 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 as moisture in the air 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-550 that have been catalyzed or mixed with AV-551. 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
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