MIXING INSTRUCTIONS

Stop leaks. Stabilize soil.
Control groundwater. Permanently.

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AV-118 DURIFLEX

When using AV-118 Duriflex

See the Safe Operating Practices Program (SOPP) booklet for further mixing instructions and information.

Most manufacturers of equipment used for placing AV-118 Duriflex chemical grout have standardized on two 30-gallon (113.56 liters) chemical tanks, shown below as TANK A and TANK B. When properly mixed, one 50 liter (14.7 gallon) container of AV-118 Duriflex Chemical Grout results in a 10% strength grout mix. Two containers of AV-118 Duriflex result in a 20% strength grout mix. Percentages, as used here, refer to parts of chemical per 100 parts of total grout solution mixed.

One container will make a 60-gallon (227.12 liters) batch of grout. For best results, these grouts should be used at solids concentrations of 5% or greater. Concentrations of up to 15% are favored for higher-strength gels and greater ability to handle dilution prior to gelation.

When mixing the AV-118 Duriflex Chemical Grout solution, follow these steps:

TANK A

1. Fill Tank A with approximately 15 gallons (56.79 liters) of water.
2. Pour or pump the 14.7 Gallons (1Drum) of AV-118 Duriflex blend into Tank A and stir until all of the liquid is mixed together.
3. Add the AV-101 CAT-T+ (2 Quarts/5 lbs.) (1.89 liters)
4. Add enough water to Tank A to reach the 30-gallon (113.56 liters) mark.

TANK B

1. Fill Tank B with 20 – 25 gallons (76 – 95 liters) of water.
2. Add the AV-103 SP. (2 Quarts/5lbs)
3. Stir until AV-103 SP is completely dissolved.
4. Add enough water to Tank B to reach the 30 gallon (113.56 liters) mark.

Note: Before grouting, perform a "cup test" which consists of using two (2) cups, filling one ¼ full with TANK A solution and the other ¼ full with the solution from TANK B. Using a watch with a second hand, track the time required for the solutions to gel as you mix the solutions together, pouring from cup to cup. The normal gel time at 72˚F should be approximately 20 – 30 seconds.

For additional information regarding gel times, call your Avanti representative.

TANK A		**TANK B**		
AV-118: 1 Drum AV-101 CAT-T+: 2 Quarts/5lbs. WATER: enough to reach 30-Gallon mark **(Do not exceed 2.5% CAT-T+)**	+	AV-103 SP: (2 Quarts/5lbs.) WATER: enough to reach 30-gallon mark **(Do not exceed 3% Or 15 lbs. AV-103 SP)**	=	10% AV-118 grout in solution. Weight approximately 500 lbs or 226.8 kg
30 gallons (113.56 liters)		30 gallons (113.56 liters)		**TOTAL = 60 gallons or 227.12 kg**

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AV-101 CATALYST T+

1. A heavy syrup-like liquid supplied in 55-gallon (208.2 liters) drums or 5-gallon (18.93 liters) plastic pails and is the chemical most commonly used as the activator in the polymerization reaction of the chemical grout. AV-101 CAT-T+ weighs 9 lbs/gal (15.82 kg/liter).
2. Added to the grout tank containing the AV-118 solution and should only be added after dissolving both components of AV-100 completely in water.
3. Incompatible with oxidizing compounds, such as AV-103 SP, and should be stored in a tightly closed container in an area isolated from other chemicals.
4. Blended with ethylene glycol to reduce its freezing temperature from 70°F to 0°F (21.1°C to -17.78°C)

AV-103 CATALYST SP

1. Initiator that triggers the polymerization reaction. It is added to the catalyst chemical tank, pumped through its own hose, and mixes with the AV-118/AV-101 solution in the mixing chamber of the sealing packer or in the void area of the packer.
2. A white granular material normally supplied in 220-lb (99.790 kg) fiber drums or 50-lb (22.68 kg) plastic pails. It is a very strong oxidizing agent. Exposure to moisture will reduce the effectiveness of the catalyst as an oxidizer.

Optional Additives

1. **AV-105 Ethylene Glycol** – Protects against freezing and dehydration
    a. Amount: 3 to 5 Gallons (11.36 to 18.93 liters) (replaces water, either tank)
    b. Supplied as: Pails (5 Gallons, 18.93 liters) or Drums (55 Gallons or 208.12 liters)
2. **AV-257 Icoset** – Increases compressive and tensile strength. Caution should be taken to ensure the equipment valve mechanism can function using this additive (similar to latex).
    a. Amount: Maximum 3 Gallons (11.36 to 18.93 liters) – replaces water, ADD TO THE GROUT SIDE TANK ONLY
    b. Supplied as: Pails (5 Gallons, 18.93 liters) or Drums (55 Gallons, 208.2 liters)
3. **AC-50W Root Inhibitor** – Slows new growth of roots in the sewer joints.
    a. Amount: 3.2 ounces (90.72 grams) by weight – ADD TO THE GROUT SIDE TANK ONLY
    b. Supplied as: 4 lb. (1.814 kg) bag
4. **Dye –** Visually enhances the grouting material.
    a. Amount: .07 ounces by weight to .35 ounces by weight per 26 gallons of solution. – Add equal amounts to both tanks.
    b. Supplied as: 1 lb. container and tablets.
5. **Potassium Ferricyanide (Kfe)** – Extend the gel time. (See KFe TDS for more details)

    Use chart below to determine recommended amount of potassium ferricyanide.
    a. Add desired amount to grout tank and mix thoroughly.
    b. Supplied as: l lb. container.

Amount of Kfe per 60-gallon batch*	
Gelation Time (mm:ss) @ 65°F/20°C and 14.696 psi/1 atm	Potassium ferricyanide quantity per 60-gallon batch ≈ 500 lbs.
00:30	0.0 ounces (0.0 grams)
4:00	0.8 Ounces (22.7 grams)
8:00	1.6 ounces (45.4 grams)