

Mixing Instructions



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AV-100 LIQUID

When using AV-100 Liquid Blend

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

Most manufacturers of equipment used for placing acrylamide 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 (13.21 gallon) container of AV-100 Liquid Chemical Grout results in a 10% strength grout mix. Two containers of AV-100 Liquid result in a 20% strength grout mix. Percentages, as used here, refer to parts of chemical per 100 parts of total grout solution mixed.

The 50 liter (13.21 gallon) container contains the equivalent of a 50-lb. (22.68 liters) bag of AV-100 that has been dissolved in water. There are approximately 47.5 lbs (21.54 kg) of Acrylamide Monomer and 2.5 lbs (1.13 kg) of Methylenebisacrylamide in this drum. This drum contains the same amount of grout as the previous 15-gallon (56.79 liters) drum of AV-100 Liquid.

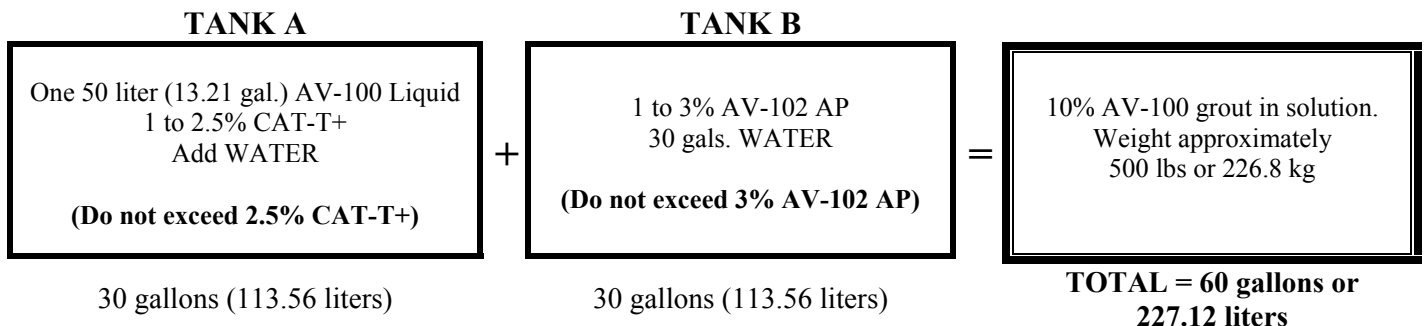
One container will make a 60-gallon (227.12 liters) batch of grout. For best results, these grouts should be used at solids concentrations of 10% or greater. Concentrations of up to 15% are favored for higher-strength gels and greater ability to handle dilution prior to gelation.

- TANK A**
1. Fill Tank A with approximately 15 gallons (56.79 liters) of water.
 2. Pour the 13.21 Gallons (15 Gallon/57 liter Drum) of AV-100 Liquid blend into Tank A and stir until all of the liquid is mixed together.
 3. Add the AV-101 CAT-T+
 4. Add water to Tank A to complete the 30-gallon (113.56 liters) mix.

- TANK B**
1. Fill Tank B with 20 – 25 gallons (76 – 95 liters) of water.
 2. Add AV-102 AP to achieve desired gel time.
 3. Stir until AV-102 AP is completely dissolved.
 4. Add water to 30 gallon (113.56 liters) fill line and stir until completely mixed.

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 should be approximately 22 – 28 seconds.

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



Ratio AV-101 CAT T+

1% = 0.5 Gallons (1.89 liters)
 2% = 1 Gallon (3.79 liters)
 2.5% = 1.25 Gallons (4.73 liters)

Typical Pitcher = 0.5 Gallons
 (1.89 liters)

Ratio AV-102 AP

1% = 5 lbs. (2.27 kg)
 2% = 10 lbs. (4.54 kg)
 3% = 15 lbs. (6.80 kg)

Typical Scoop = 5 lbs. (2.27 kg)

For normal use, the catalyst system is composed of AV-101 CAT T+ (Triethanolamine plus additives) and AV-102 AP (Ammonium Persulfate).

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 tank containing the AV-100 solution and should only be added after dissolving both components of AV-100 completely in water.
3. Incompatible with oxidizing compounds, such as AV-102 AP, 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-102 CATALYST AP

1. Initiator that triggers the polymerization reaction. It is added to the second chemical tank, pumped through its own hose, and mixes with the AV-100/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 225-lb (102.06 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 or 18.93 liters) or Drums (55 Gallons or 208.12 liters)
2. **AV-257 Icosec** – 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: 3 to 5 Gallons (11.36 to 18.93 liters) – replaces water, ADD TO THE GROUT SIDE TANK ONLY
 - b. Supplied as: Pails (5 Gallons or 18.93 liters) or Drums (55 Gallons or 208.2 liters)
3. **Potassium Ferricyanide (KFe)** – An inhibitor used in small quantities to extend the gel time. Used when working in high temperatures or a long gel time is required.
 - a. Amount: Very small amount (1 to 2 teaspoons to start) (1 US teaspoon = 0.9857 Metric teaspoon)
 - b. Supplied as: Technical Grade, 1 lb. bottles (0.4536 kg)
4. **AC-50W Root Inhibitor** – Additive 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) bag