AVANTI
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MIXING GUIDELINES:
AV-100® Chemical Grout – Granules (30 lb. bag)

Two (2) 30-lb. bags of AV-100 Chemical Grout will make one (1) 60-gallon (75.7 liters) batch of ~12% injectable acrylamide grout. For best results, these grouts should be used at a solids concentration of 12% or greater. Concentrations of up to 20% are favored for higher strength gels and greater ability to lessen grout concentration dilution prior to gelation. If a higher grout concentration is desired, please refer to the table below for Tank A and Tank B volumes.

When mixing the AV-100 Chemical Grout from a 30-lb. bags, follow these steps for a standard batch of ~12% grout concentration.

Standard Batch using (2) 30-lb. bag of AV-100 Chemical Grout - Granules

TANK A

1. Wear the Appropriate PPE in accordance with Avanti's Safety Data Sheets (SDS).
2. Fill Tank A with approximately 10 - 15 gallons (56.8 liters) of water.
3. Open AV-100 bags carefully and unfold the inner plastic bag long neck.
4. Pour all the contents of the both 30-lb. bags of AV-100 – one at a time - into Tank A by submerging the long neck under water. Stir well.
5. Add AV-101 Cat-T+ (5.5 lbs.; 78 fl. oz.).
6. Add enough water to Tank A to reach the 30-gallon (113.6 liters) mark.

TANK B

1. Fill Tank B with 10 - 15 gallons (56.8 liters) of water.
2. Add AV-102 Ammonium Persulfate (5.5 lbs.).
3. Stir until AV-102 AP is completely dissolved.
4. Add enough water to Tank B to reach the 30-gallon (113.6 liters) mark.

Grout Concentration (%)	Tank A Volume (gallons)	Tank B Volume (gallons)
~10	36	36
~12	30	30
~15	24	24
~20	18	18

Table 1 – Concentration by Volume

Note: Before grouting, perform a "cup test". A cup tests consists of using two (2) disposable cups, filling one cup 25% full of Tank A solution, and the other cup 25% full of Tank B solution. Using a watch with a second hand or stopwatch, track the time required for the solutions to gel (cure) as you mix the solutions together, pouring from cup to cup. The normal gel time at 72°F should be approximately 30 – 40 seconds for a standard batch ~12% grout concentration. Higher concentrations will cure marginally faster. Refer to the table Estimated Gel Times on the next page for estimated gel times at various temperatures or call your Avanti International representative for assistance.

TANK A		TANK B		
AV-100 Chemical Grout – (2) 30 lb. bags **AV-101 Cat-T+: 5.5 lbs. (78 fl. oz.)** Water: enough to reach 30-gallon mark *(Do not exceed 5% AV-101 CAT-T+)	+	**AV-102 AP: 5.5 lbs.** Water: enough to reach 30-gallon mark *(Do not exceed 5% AV-102 AP)	=	**~12% AV-100 concentration in solution**
30 gallons (113.6 liters)		30 gallons (113.6 liters)		60 gallons (227.1 liters)

AV-100	AV-101 and AV-102 % on Total Batch				
Temp	1%	2%	3%	4%	5%
80°F	18				
70°F	32	8			
60°F	58	18	8		
50°F	97	34	20	8	
40°F	140	44	30	21	8

Table 2 - Estimated Gel Times in Seconds

Note: The gel times presented are based on controlled laboratory conditions and are for reference purpose only. It should be expected that gel times will vary on the job site. It is the sole responsibility of the user to verify and monitor gel times of their specific grout mix.

AV-101 Catalyst T+

1. AV-101 is a heavy syrup-like liquid supplied in 55-gallon (208.2 liter) drums or 5-gallon (18.93 liter) plastic pails. AV-101 is the chemical commonly used as the activator in the polymerization reaction of the AV-100 chemical grout. AV-101 Cat-T+ weighs 9 lbs./gal. (15.82 kg/liter).
2. AV-101 is added to the grout tank – Tank A - containing the AV-100 solution.
3. AV-101 is 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.

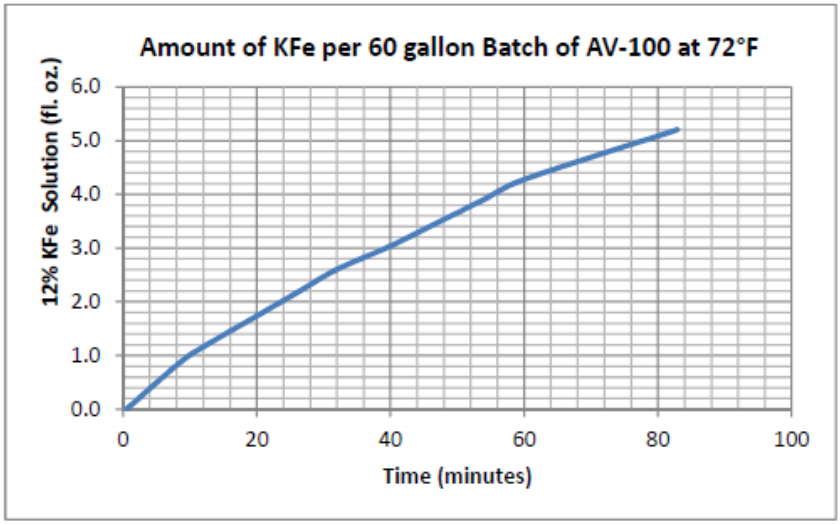
AV-102 Catalyst AP (Ammonium Persulfate)

1. AV-102 AP is a white granular material normally supplied in 220-lb. (99.790 kg) fiber drums or 50-lb. (22.68 kg) plastic pails. AV-102 is the initiator that triggers the polymerization reaction.
2. AV-102 is added to the catalyst chemical tank - Tank B. AV-102 is pumped through its own hose, and mixes with the Tank A solution (AV-100/AV-101) in in the mixing chamber of the sealing packer or in the void area of the packer.
3. AV-102 is a very strong oxidizing agent. Exposure to moisture will reduce the effectiveness of the catalyst as an oxidizer.

Optional Additives

1. **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-gal. (11.4 liters) – replaces water in Tank B side only.
    b. Packaging: 5-gal. pails (18.93 liters) or 55-gal. drums (208.12 liters).

2. **Potassium Ferricyanide (KFe) –** Extends gel time. See KFe TDS for more details.
   Use the following guidelines to extend AV-100's gel time.
    a. Mix 1-lb. of KFe into 1-gal. (3.8 liters) of planned mix water to create a 12% KFe solution.
    b. Using the graph below, determine your desired set time. Actual set times will vary for each specific site and temperature. Avanti recommends a KFe Panel Test" be performed to determine site specific set times. Please reference Avanti's **KFe Panel Testing Guide**.
    c. Add the desired amount of solution to the Tank A side only and mix thoroughly.



Note: The gel times presented in the chart above are based on controlled laboratory conditions and are for reference purpose only. It should be expected that gel times might vary on the job site. It's the sole responsibility of the user to verify and monitor gel times of their specific grout mix.