

## Mixing Guidelines: AV-100® Chemical Grout – Liquid Drum (130 lbs.) – Standard 10% Concentration

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When properly mixed, (1) 130 lb. drum of liquid AV-100 Chemical Grout will make a 60-gallon (227.12 L) batch of ~10% injectable acrylamide grout (two drums of AV-100 result in 20% strength). For best results, these grouts should be used at a solids concentration of 10% or greater. Concentrations of up to 20% are favored for higher strength gels and greater ability to lessen grout concentration dilution prior to gelation. One (1) 130 lb. drum of AV-100 contains the equivalent of a 50 lb. granular bag of AV-100 that has been dissolved in water.

If a higher grout concentration is desired, refer Table 2 below for Concentrations based on Total Fill Volume for Tank A and Tank B. Most manufacturers of equipment used for mixing acrylic chemical grout have two standardized 30-gallon (113.56 L) chemical tanks, shown below as Tank A and Tank B.

Refer to Avanti's Safe Operating Practices Program (SOPP) for further safety, handling, and product use information or call your Avanti representative.

### **WHAT YOU WILL NEED:**

- (1) 130 lb. drum of AV-100 Chemical Grout (acrylamide) - Liquid
- 5.5 lbs. (78 fl. oz.) AV-101 Catalyst T+ (triethanolamine (TEA))
- 5.5 lbs. AV-102 Catalyst AP (ammonium persulfate)
- Water (potable water or clean site water)
- Personal Protective Equipment (PPE) in accordance with Avanti's Safety Data Sheet (SDS)
- Optional but encouraged – tracer dye to mixture to track grout travel

### **MIXING TANK A (Grout Tank) - See Table 1**

1. Wear the appropriate PPE in accordance with Avanti's Safety Data Sheets (SDS). Up to date SDS can be found online at [avantigrout.com](http://avantigrout.com).
2. Fill Tank A (grout tank) with approximately 10 gal. (37 L) of water.
3. Pour or pump the contents of one drum of AV-100 Chemical Grout (130 lbs.) into Tank A.
4. Add AV-101 Catalyst T+ (5.5 lbs.; 78 fl. oz.). Stir well.
5. Add enough water to Tank A to reach the 30 gal. (113.6 L) mark. Stir well.
6. Optional but encouraged – tracer dye to mixture to track grout travel.

### **MIXING TANK B (Catalyst Tank) – See Table 1**

1. Fill Tank B (catalyst tank) with 20-25 gal. (76-95 L) of water.
2. Add AV-102 Catalyst AP (5.5 lbs.). Stir until material is completely dissolved.
3. Add enough water to Tank B to reach the 30 gal. (113.6 L) mark. Stir well.
4. Optional but encouraged – tracer dye to mixture to track grout travel.



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TANK A	TANK B	
Water: 10 gal. (37 L) AV-100 Chemical Grout – (1) 130 lb. drum AV-101 Cat-T+: 5.5 lbs. (78 fl. oz.) Water: up to 30 gal. mark *Do not exceed 5% AV-101 Cat-T+	Water: 20-25 gal. (76-95 L) AV-102 AP: 5.5 lbs. Water: up to 30 gal. mark *Do not exceed 5% AV-102 AP	<b>~10% AV-100 concentration in solution</b>
<b>30 gal. (113.6 L)</b>	<b>30 gal. (113.6 L)</b>	<b>60 gal. (227.1 L)</b>

**Table 1.** Mix Component Steps by Tank

Grout Concentration	Total Tank A Fill Volume (gallons)	Total Tank B Fill Volume (gallons)
~10%	30.0	30.0
~12%	25.0	25.0
~15%*	20.0	20.0
~20%*	15.0	15.0

**Table 2.** Concentrations Based on Total Fill Volume of Tank A and B

\* Do not add more than 10 gallons of water to Tank A before adding AV-100 liquid.

**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 – or cure - as you mix the solutions together, gently stirring the mixed solution. The normal gel time at 72°F should be approximately 20-30 seconds for a standard batch at a ~10% grout concentration. Higher concentrations will cure marginally faster. Refer to Table 3 for estimated gel times at various temperatures or call your Avanti International representative for assistance.

### AV-100 Gel Times in Seconds

AV-100 Temp.	AV-101 and AV-102 % on Total Batch				
	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 3.** 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.

### About the Products

- **AV-100® Chemical Grout (Liquid)** – clear liquid mixture of acrylamide and N,N'-methylenebisacrylamide (MBA) at a 95:5 ratio of acrylamide to MBA.
- **AV-101 Catalyst T+™** - colorless liquid which is used as a required activator for the reaction of AV-100. The special blend of ingredients in AV-101 reduces its freezing point to 0°C and enhances the final gel. AV-101 can only be added to the grout side tank. AV-101 is incompatible with oxidizing compounds such as AV-102 AP or AV-103 SP and should be stored in a tightly closed container in an area isolated from other chemicals.
- **AV-102 Catalyst AP™** – Ammonium persulfate, white crystalline solid used as the initiator for the radical polymerization reaction of acrylic and acrylate monomers. Required component and can

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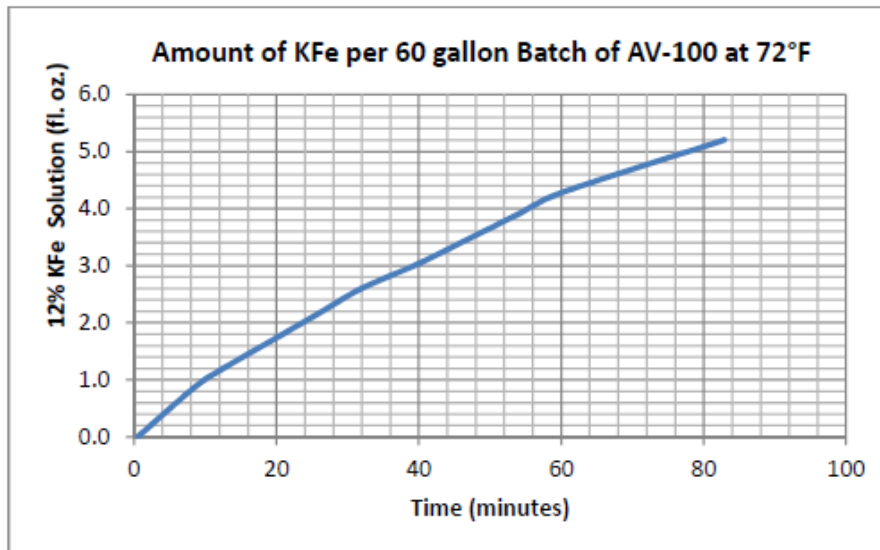
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be increased from 5.5 lbs. to a maximum of 16.5 lbs. AV-102 is a strong oxidizing material which decomposes over time. AV-102 can only be added to the catalyst tank. Exposure to moisture will reduce the effectiveness of AV-102 as an oxidizer.

## Optional Additives

- **AV-105 Gel Guard™** - clear liquid designed to reduce the freezing point of AV-100. Adding 10% can lower freezing temperatures by as much as 9°F/5°C.
- **AV-257 Icose™** - white liquid emulsion, copolymer latex gel strengthening agent. AV-257 provides the cured material with improved hydrostatic pressure resistance, better low-temperature plasticity, and improved adhesion. This premium product has a freeze-grade rating.
- **Potassium Ferricyanide (KFe)** – red crystal, chemical compound used in small quantities to extend gel times. See Technical Data Sheet for more details. Use the following guidelines to extend AV-100's gel time:
  - i) Mix (1) lb. of KFe into (1) gal. (3.8 L) of planned mix water to create a 12% KFe solution based on weight.
  - ii) Using the graph below, determine your desired set time. Actual set times vary for specific site and temperature conditions. Completing a panel test to determine site specific set times is recommended. Contact your Avanti representative for KFe Panel Testing Guidelines.
  - iii) Add desired amount of KFe/Water mixture to Tank A (grout side) only and mix thoroughly.



**Graph 1. KFe Set Time Chart**

**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 is the sole responsibility of the user to verify and monitor gel times of their specific grout mix.