

Potassium Ferricyanide (KFe)

Gelation Time Extender

Description

Potassium Ferricyanide - also known as KFe - is a chemical compound used in small quantities to extend gel times for Avanti's chemically activated acrylic gel systems. Only small quantities (parts per million by the weight range of KFe crystals) are required for effective results.

- AV-100® Chemical Grout – liquid and granular
- AV-118® Duriflex
- AV-150 Acrylate Gel™
- AV-160 SuperGel™
- AV-170 FlexGel™

Applications

- Extends gelation time for Avanti's chemically activated acrylic gel systems

Features & Benefits

- Small quantities produce effective results
- Does not affect cured gel characteristics

How it works

Avanti's chemically activated acrylics gels react via a free radical vinyl polymerization via a redox (reduction/oxidation) reaction. The Potassium Ferricyanide (KFe) is first chemically reduced and becomes an antioxidant to prevent free radical generation in the solution, thereby retarding/slowing the free radical vinyl polymerization of the chemically activated acrylics gel systems.

Packaging

- 16 oz. Bottle – 1.0 lb.
- Bag – 55 lbs.
- Drum – 110 lbs.

Physical Properties*

Chemical Name	Potassium hexacyanoferrate (III)
CAS Number	13746-66-2
Molecular Formula	K ₃ [Fe(CN) ₆]
Molar Mass	329.24 g/mol
Appearance	Red crystals
Concentration	>99%
Solubility	488.4 g/L @ 77°F (25°C)
Bulk Density	900 – 1100 kg/m ³
Specific Gravity (water=1)	1.89 g/mL

* Laboratory results

Mix Guidelines

Do not add the KFe powder directly to the grout (Tank A) or catalyst (Tank B) tanks. Prepare a 12% KFe stock solution by dissolving one pound of KFe in 0.75-gallons of site water, then topping off with site water not exceeding one-gallon total stock solution. Make sure all KFe is completely dissolved. Determine an incremental amount of KFe stock solution that will estimate the desired gel times. Use the table below to estimate the recommended amount of KFe 12% stock solution for your desired gel time. The KFe solution may be added to either the grout or catalyst tank and then mix thoroughly. Thoroughly mix the KFe solution each time prior to extracting an amount to be added to either tank.

Performance

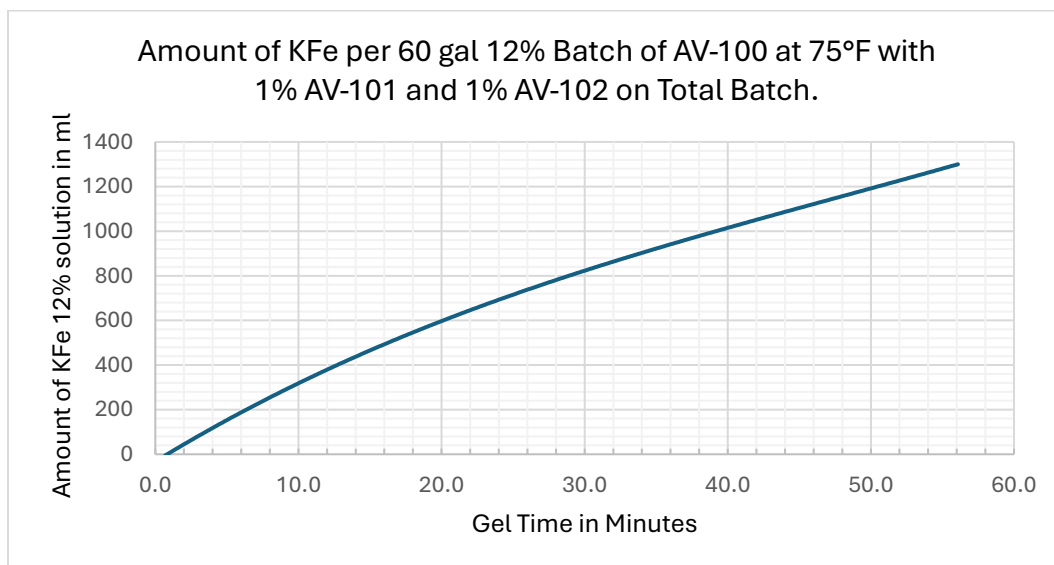
Add KFe in small increments and perform a cup test with site water to determine the desired reaction time. Reaction times are temperature dependent. Follow KFe Panel Test Guideline available 24/7 at avantigrout.com. For AV-150, AV-160 and AV-170, it is advised to add the KFe solution to the catalyst or initiator tank (Tank B) only.

CAUTION: When using AV-160 or AV-170, adding KFe and AV-101 to Grout Tank (Tank A) might prematurely gel the grout tank when kept overnight. When using AV-150, adding the KFe to the Grout Tank (Tank A) will precipitate the KFe out of solution and will provide erratic extended gel times.

NOTE: The table and chart below are for informational/guidance only for AV-100® Chemical Grout at those specific quantities, temperature, and catalyst concentrations. Please consult Avanti's technical representatives for any variation in chemical grout, quantity, temperature, and catalyst concentrations.

Amount of KFe 12% stock solution per 60-Gallon Batch of AV-100 [†]	
Gelation Time (Min) @ 75°F (24°C) and 14.696 psi/1 atm	KFe 12% stock Solution quantity per 60-gallon batch ≈ 500 lbs.
0.7	0 ml (0.0 fl. oz.)
2.3	60 ml (2.0 fl. oz.)
4.2	120 ml (4.0 fl. oz.)
5.9	180 ml (6.1 fl. oz.)
9.5	300 ml (10.1 fl. oz.)
13.5	420 ml (14.2 fl. oz.)
17.4	540 ml (18.3 fl. oz.)
22.6	660 ml (22.3 fl. oz.)
27.9	780 ml (26.4 fl. oz.)
35.0	900 ml (30.4 fl. oz.)
44.1	1020 ml (34.5 fl. oz.)
47.3	1140 ml (38.5 fl. oz.)
56.1	1240 ml (42.6 fl. oz.)

[†]These numbers are from laboratory results in a controlled environment and are estimates only and are not guaranteed gelation times. Add KFe in small increments and test to ensure proper gelation times. Gel times are temperature dependent



Storage

Store in temperatures below 80°F (27°C) in a dry atmosphere. Shelf-life is one year when stored accordingly.

Safety

Potassium Ferricyanide (KFe) is for use in Avanti's chemically activated acrylic gel systems only. 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

- Non-hazardous

Notice

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