

TYTRO™ AC-400 Acrylate Chemical Grout Resin

Product Description

TYTRO™ AC-400 chemical grout is a non-acrylamide acrylate monomer sealant designed for water control during tunnelling operations, for curtain grouting, and for excavatable soil consolidation in situations where low tensile and compressive strengths can be tolerated. AC-400 can also be used for controlling infiltration in mainline and lateral sewer joints.

Product Advantages

- Non-acrylamide technology
- Pumps without modification to existing grouting acrylate / acrylamide equipment
- Extremely low viscosity grout (1-3 cPs)
- Very low permeability (5×10^{-9} cm/sec)
- Provided in liquid form (40% solids)
- No acrylamide powder batch mixing on jobsite
- Not flammable or explosive

Applications

- Water control in tunnelling
- Curtain grouting
- Soil support for excavation
- Mainline and lateral sewer grouting
- Geo-technical grouting

Installation Guidelines

Warning: Consult the technical data sheets and safety data sheets before using.

A chemical grout will result from mixing the following components:

GROUT TANK	TYTRO™ AC-400, water and TE-300
SP TANK	Water and SP-200

When these components are properly mixed and brought together, the resulting chemical grout will form an impermeable, durable gel. The TYTRO™ AC-400 chemical grout has a variable gel time from 5 seconds to 1 hour to handle most sealing conditions.

Mixing Instructions

GROUT TANK should first be filled with 12 gallons water, then 15 gallons (3 drums) of TYTRO™ AC-400 grout should be added. Add TE-300 and mix well.

SP TANK should be filled with 27.5 gallons water, then add SP-200 and mix well.

TYPICAL FORMULATIONS

For geo-technical grouting applications:

The following typical formulation may be used in the field at 15° C (59° F) to give approximately 30 minutes gel time:

	WT%	Pounds	Gallons
GROUT TANK			
Water	19	100	12
TYTRO™ AC-400	30	147	15.0
TE-300	0.5	7	0.75
KF-500	0.5	2.5	0.29
SP TANK			
Water	49.5	230	27.5
SP-200	0.5	5	
Total	100	491.5	55.5

KF-500 is a retarder for TYTRO™ AC-400 grouting applications. It is packaged as 4 oz. of potassium ferricyanide powder, which should be diluted with 36 ounces water to make a 10% solution. The solution as mixed provides 0.5% KF-500 as shown above.

Other formulations are available for extended gel times. Contact TYTRO™ Technical Services.

For sewer sealing and curtain grouting applications:

The following typical formulation may be used in the field at 15°C (59°F) to give approximately 60 seconds gel time:

	WT%	Pounds	Gallons
GROUT TANK			
Water	19	100	12
TYTRO™ AC-400	30	147	15.0
TE 300	0.5	7	0.75
SP-TANK			

Water	49.5	230	27.5
SP-200	0.5	5	
Total	100	489.0	55.25

The following typical formulation may be used in the field at 15°C (59°F) to give approximately 20 seconds gel time:

	WT%	Pounds	Gallons
GROUT TANK			
Water	19	100	12
TYTRO™ AC-400	30	147	15.0
TE-300	0.5	9.26	1.0
SP TANK			
Water	49.5	230	27.5
SP-200	0.5	5	
Total	100	496.25	55.5

Set times will vary depending on temperature and humidity. Always preform a cup test to determine the actual gel time of each mixed batch. Additional SP-200 may be added to shorten the gel time. If grout is left in tank overnight, always perform a new cup test before beginning next day's grouting.

Packaging & Handling

TYTRO™ AC-400 Grout is used with SP-200 (sodium persulfate) and TE-300 (triethanolamine). Available in 5 gallon drums (49 lbs). TE-300 and SP-200 are sold in several sizes.

WARNINGS:

Workers handling the grout must wear rubber gloves, goggles, and waterproof shoes. If the grout comes in contact with the skin, it should be washed off immediately with water. The grouting truck must be ventilated when mixing TYTRO™ AC-400 grout. Avoid breathing of the grout vapor. Use a blower and flexible duct to ventilate the bottom of manholes being grouted. Follow confined space entry and work procedures as required.

- Do not let SP-200 and TE-300 come into contact with each other prior to field mixing. The reaction is exothermic (heat producing) and may cause fire.
- Store SP-200 and TE-300 separated from each other, at 40° F–80° F.
- TE-300 and SP-200 are incompatible with aluminum. Do not use aluminum equipment in the presence of TE-300 and SP-200.
- Prolonged exposure to UV, sunlight, and elevated temperatures above 85°F will cause solidification of the product.

Health and Safety

Users must read and understand the product label and safety data sheet (SDS) for each system component before use. All users should acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product label and SDSs before use. The most current SDSs can be obtained from the GCP website at gcpat.com or by contacting GCP toll free at 1-866 333-3726.

Limitations

This product is not intended to fill large void spaces.

Properties

TYTRO™ AC-400 acrylate resin	
Appearance	Straw yellow liquid
Density	9.8 lbs/gal
Percent solids	39 – 41%
Specific gravity	1.2
Boiling point	200 °F (93 °C)
Solubility in water	100%
Toxicity	Very low toxicity (not certification program required)
TYTRO™ AC-400 solution	
Viscosity	1 – 3 cPs
Density	8.6 lbs/gal (1.04 mg/ml)
pH	6.5 – 7.5
TYTRO™ AC-400 cured	
Appearance	White flexible gel
Solubility	Insoluble in water, kerosene, gasoline, Gel swells slightly in presence of water
Permeability	Substantially impermeable to water (5x10 ⁻⁹ cm/sec) Stable in 100% humidity. Can dehydrate in dry conditions.
Chemical resistance	Resistant against bacteria, fungi, and chemicals found in sewer systems

Note: The data shown above reflects typical results based on laboratory testing and controlled conditions. Reasonable variations from the data shown above may result.

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Last Updated: 2021-03-09

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