



FlexaTrac™

FOR CHEMICAL GROUTING



FlexaTrac can be used as a curing agent and formulated into liquid hardeners for chemical grouting and soil stabilization during drilling, tunneling and excavation. These silicate solutions contain water, sodium silicate and hardening agents that gel the solution together, analogous to natural sandstone.

Types of Setting/Gelling agents

Organic curing agents

Organic curing agents such as FlexaTrac-DME-100 or FlexaTrac-AGS-100 should be used in a starting point formulation. Since these products have a longer setting time, the silicate and setting agent can be pre-mixed and pumped as one system.

Inorganic curing agents

Inorganic curing agents such as calcium chloride form strong bonds, but settling times are hard to manage due to a fast reaction time.

FlexaTrac blending guidelines for chemical grouting

Please consider the following when using FlexaTrac* as a curing agent for chemical grouting:

- The best starting point for a silicate solution is 5-15 cp, which is 20-40% sodium silicate in water. When using FlexaTrac for grouting, be mindful of the type of silicate used. Silicates vary by percentage of solid or water, the type of Cation – Na/K and the initial viscosity.
- The pH of the solution should be between 5-10 to form a gel with FlexaTrac as a hardening agent.
- All gelling or setting times are impacted with temperature. The rate of acid formation in the solution is controlled by the quantity of hardener added rather than the dilution of the sodium silicate solution.
- Allow 40-60 minutes for an ideal gel time. The viscosity of the solution should remain under 100 cp until three minutes before the ideal gel time is reached. Please follow these guidelines to ensure the mechanical strength of the grout.
- A 1:1 molar ratio is typically needed, but the ratio ultimately depends on the amount of polymerized silica present in the solution. If 75 mol% sodium silicate is already in polymerized form, for instance, only 25 mol% of hardener is needed to then polymerize the remaining 25 mol% of sodium silicate.

*Loading varies depending upon geological composition.

Avg. Molar mass (g/mol)	
FlexaTrac-DME-100	161
FlexaTrac-AGS-100	133

FlexaTrac-AGS-100
 $(\text{CH}_2)_m(\text{COOH})_2$

+

Sodium Silicate
 $\text{SiO}_2 \text{ Na}_2\text{O}$



Gel
 $\text{SiO}_2 + x\text{H}_2\text{O} +$

$(\text{CH}_2)_m(\text{COONa})_2$

FlexaTrac

Product Features

- Mild to no odor – colorless liquid
- Excellent HSE profile and no labeling concerns
- Readily biodegradable

Application Benefits

- Reduces construction cost and time
- Allows for building on previously unstable soil
- Provides controlled gelation rates
- Water miscible
- Penetrates most soil structures
- High ease of use – no special handling required



	FlexaTrac-DME-100	FlexaTrac-DME-200	FlexaTrac-DME-300	FlexaTrac-DMS-400	FlexaTrac-DMG-500	FlexaTrac-DMA-600
Chemical Properties						
Dimethyl Succinate, wt. %	17-25	1.0 max.	1.0 max.	98.5 min.	1.0 max.	1.0 max.
Dimethyl Glutarate, wt. %	59-73	72-76	8 –12	1.0 max.	99.0 min.	1.0 max.
Dimethyl Adipate, wt. %	10-14	23-27	87-91	1.0 max.	1.0 max.	99.0 min.
Acid Content, mg KOH/g, max.	0.3	0.1	0.1	0.1	0.1	0.1
Water Content, wt. %, max.	0.1	0.1	0.1	0.1	0.1	0.1
Methanol Content, wt. %, max.	0.2	0.1	0.1	0.1	0.1	0.1
Color, APHA, max.	15	15	15	15	15	15
Physical Properties						
Molecular Weight	159	163	172	146	160	174
Distillation Range, °C	195-216	203-220	211-229	192-201	203-214	216-230
Density, #/gal, @ 25°C	9.10	8.98	8.83	9.28	9.03	8.82
Specific Gravity @ 25°C	1.091	1.076	1.058	1.112	1.082	1.057
Viscosity, cps, @ 25°C	3.88	3.31	3.71	3.91	3.66	4.33
Solubility in Water, wt. %	5.5	4.3	2.6	10.3	5.1	2.1
Water Solubility in DMEs, wt. %	3.6	3.2	2.8	4.0	2.9	2.9
Freezing Point, °C	-40.0	-42.4	2.8	16.8	-37.5	9.4
Flash Point, °F (Pensky-Martin cc)	212	226	235	201	224	255
Flash Point, °C (Pensky-Martin cc)	100	108	113	94	107	124
Surface Tension, dynes/cm	35.3	35	32.5	34.6	35.6	35.1
Electrical Resistance, megohms	1.3	1.9	3.0	1.3	2.3	5.0
Vapor Pressure, @ 20°C (Torr)	0.06	0.04	0.02	0.12	0.05	0.01

*NOTE: Product specifications are subject to change without notice. Please write or call us for our current product specifications.



About Ascend

Headquartered in Houston, Texas, Ascend Performance Materials is the world's largest fully-integrated producer of nylon 6,6 resin. As the world's only large-scale converter of acrylonitrile to adiponitrile, Ascend is uniquely positioned for the production of dozens of amines, acids, esters and intermediates used in a variety of end applications. Our integrated manufacturing processes allow us to produce a wide range of specialty chemicals. Ascend's specialty chemicals are used in hundreds of brand-name adhesives, coatings, cleansers and detergents. Ascend manufactures chemicals at its facilities in Texas, Alabama and Florida.

For more information on our specialty chemicals visit us at www.ascendmaterials.com/specialtychemicals

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