Levasil FO1440

colloidal silica for fiber bonding

Levasil FO1440 is the most commonly used colloidal silica for bonding refractory fibers and rigidizing refractory fiber shapes and boards. **LEVASIL FO1440** is an economical 40% concentration silica sol of 11 nanometer diameter amorphous silica spheres. The particles carry a slightly negative surface charge with a high surface area to weight ratio for good flocculating with cationic starch.

Why Levasil FO1440?

- **Good high-temperature bonds** - Colloidal silica bonds withstand temperatures up to 2300°F with low shrinkage.
- **Saves money** - Economical 40% concentration reduces freight and package costs over lower concentration sols.
- **Flocs with cationic starch** - Negative surface charge flocs cationic starch and refractory fibers together to form a three dimensional floc for good product strength.
- **Rigidizes effectively** - Can be used diluted or full strength for sealing or rigidizing of fiber bonded shapes.

Typical Properties

Appearance	Clear liquid
Specific Gravity	1.30
Surface Area, m^2/g	250
Particle size, nm (calc)	11
Silica, wt%	40
Na_2O, wt.%	0.50
pH @ 25°C	10.4
Viscosity @ 25°C, cPs	15
Toxicity	Non-Toxic. See SDS

Storage, Handling and Safety

Prolonged exposure to temperatures of 0°C (32°F) or below should be avoided as the silica will precipitate irreversibly.

Packaging

4,000 gal. for bulk tanks; 275 gal. IBC totes; plastic 55 gal. drums; 1 & 5 gal. pails.

How to Use Levasil FO1440

LEVASIL FO1440 should be flocced with cationic corn starch, like Westar+ or Westar+3, starting with a ratio of 5% starch based on weight of total solids.

Typical Formulation:

		with filler		with filler
Water, Gallons	50	50	50	50
Refractory Fiber, lbs	8	8	8	8
Mullite 100 filler, lbs	-----	4	-----	4
Westar+ Starch, lbs.	0.4	0.6	-----	-----
Westar+3 Starch, lbs.	-----	-----	0.4	0.6
Levasil FO1440, lbs	0.8	1.2	1.2	1.8

Follow above order of addition. Add starch flakes dry and mix for 10 minutes to allow hydration and swelling of starch before adding colloidal silica; mix another 5 minutes to complete flocculating before vacuum forming. Dry at 250°F.

Note proper use: For best results, always add starch to slurry before the colloidal silica; the cationic starch serves to give a cationic charge to the fibers for efficient exhaustion of the negatively-charged silica particles on fibers.

For a price quote and valuable information on how we can help you improve your vacuum formed products call

WESBOND
(302) 655-7917

Wesbond Corporation
1135 East 7th St | Wilmington, DE 19801 | 302-655-7917 | info@wesbond.com | www.wesbond.com
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