Epoxy.com Product #71

Cab-o-Sil Thickening Agent for Resins

Cabosil is a synthetic, amorphous, untreated fumed silicon dioxide. Because of its inert nature, it has been used in food such as ketchup as well as in shampoo and some cosmetics. When mixed into liquid resin, Cabosil functions as a resin thickener (flow control agent) and sometimes as an anti-settling, anti-caking agent. Its applications are many, including thickening, epoxy, polyester, and urethane. It is a versatile thickening agent that has even been used to "thicken" fresh water and sea water.

Cabosil is an extremely fine particle size silica (silicon-dioxide / SiO_2). It is pure white and free-flowing. Each volume contains about 94% dead air space, with a density of only 2.3 lb/cu ft. On the other hand, water (density 62.4 lb / cu ft) weighs about 27 times more.

During the cure cycle, polyesters and epoxies being liquids tend to run off of vertical surfaces and accumulate on horizontal surfaces. The vertical surfaces become resin starved, whereas valleys become resin rich. The resin starved areas fail to achieve expected strength, and the resin rich areas suffer excessive shrinkage and warpage. Both of these undesirable conditions can be eliminated with the addition of the proper amount of cabosil. This thixotropic agent holds the liquid resin in place until the curing agent takes over and hardens it.

Normally, Cabosil is added at a 1% to 7% proportion based on the weight of the liquid (resin, hardener, thinner) involved. Because resin and Cabosil have such different densities, weight proportions are awkward. For example, one gallon of polyester weighs 9 pounds; 7% of 9 lbs is 10 ounces, which for Cabosil is about 1.25 gallons by volume. For many situations, volumetric proportions are more convenient. A gallon of resin and a gallon of Cabosil is a 50/50 ratio by volume, but only 5% by weight. Incidentally, this 50/50 volume ratio results in a resin consistency about like vaseline. Lesser amounts yield a more liquid consistency, whereas greater amounts yield thicker pastes. The exact amount used is determined by the application. The addition of Cabosil has no effect on such properties as pot life, cure time , etc., and only affects strength to the degree that entrapped air reduced cross-sectional area.

For preciseness, a distinction has to be made between thickness and thixotropic. These terms are not the same. Thixotropic fluids are not always thick. They are only thick when they are left undisturbed. When they are being mixed or brushed, they appear to be fluid, but when left undisturbed for 20 to 30 seconds, they become thicker and stop flowing. This is how it is possible to have a liquid that is easy to brush, but will not run.

In order to get the maximum effect with the least amount of Cabosil, the microscopic particles must be homogeneously dispersed throughout the resin. For best results, use a high shear mixing blade running at maximum speed. If a mixing stick must be used, expect to consume more of the agent. Whenever thixotrophy is needed, no finer, more effective product exists than Epoxy.com Product #71 Cabosil.

PROPERTIES:
Weight per Gallon: Approximately 8 oz.
pH (4% aqueous slurry): 3.7 - 4.3
B.E.T. Surface Area: 200 m^2 / g
325 mesh (44 microns) residue: 0.02% max
Bulk Density: 3.0 lb / cu ft (max)
Pour Density: 50 g/l Tap Density
Loss on Heating: <1.5% max
Loss on Ignition (@1000C): <2 wt%
Refractive Index: 1.46
X-ray form: Amorphous
Assay (Percent Silicon Dioxide): >99.8%
Oil Adsorption: 350 g / 100 g oil
Average Particle (Aggregate) Size: 0.2-0.3 microns

FOR INDUSTRIAL USE ONLY
KEEP AWAY FROM CHILDREN

For more information please contact:

Epoxy.com.
352-489-1666 (Phone)
352-465-3497 (Fax)
info@epoxy.com
www.epoxy.com