Hybrid Plastics®

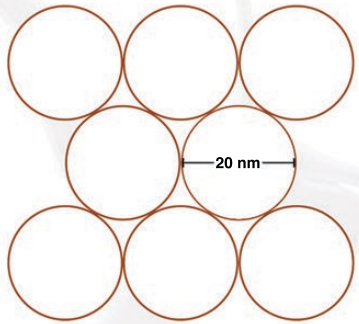
Superior Technology for Superior Products

POSS® Nanosilica Dispersion

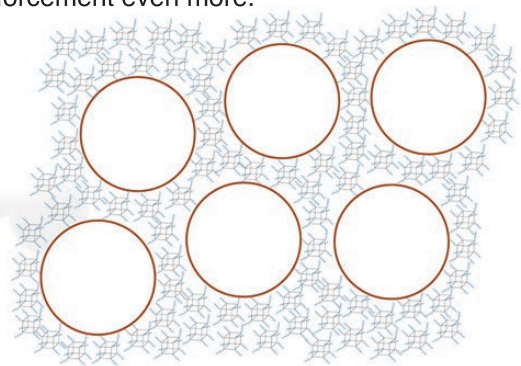
EP4F09.01 is two reinforcing agents in one. EP0409 is a hybrid, 1.5nm molecule with an inorganic silsequioxane at the core, and organic glycidyl groups attached at the corners of the cage, which acts as a multifunctional crosslinker. 30 weight percent of 20nm nanosilica is completely dispersed into the EP0409, creating a clear, colorless liquid which is easily blended into other sytems. EP0409 serves as a high temperature reactive diluent in both aromatic and aliphatic epoxy resin affording 40%-70% viscosity reductions. EP0409 can be formulated with aliphatic amines to provide, low viscosity, room temperature cure and high HDT composite resins and adhesives. The "POSS-HDT-Effect" is recognized by increased rubbery plateau modulus. POSS molecules also have robust resistance to environmental degradation such as, moisture, oxidation, corrosion, and various types of radiation. The 30% silica improves the reinforcement even more.

PHYSICAL PROPERTIES

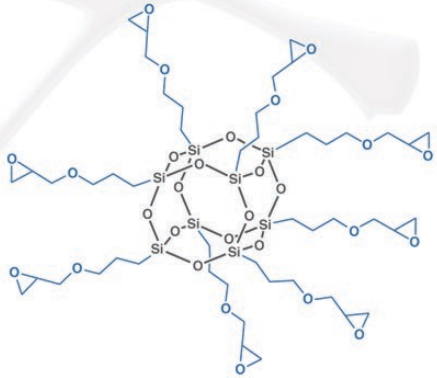
Molecular/Chemical Formula:	$(C_6H_{11}O_2)_n(SiO_{1.5})_n$ n=8, 10, 12
Molecular Weight:	1338 - 2007
Appearance:	clear, colorless liquid
Viscosity (Sheer Rate 10sec^{-1})	
25ºC	142 Poise
50ºC	35.8 Poise
75ºC	13.3 Poise
Thermal Stability (5% weight loss):	345ºC
Solvent Solubility:	THF, chloroform, toluene
Solvent Insolubility:	water, hexane
Resin Solubility:	aromatic and aliphatic epoxy resins

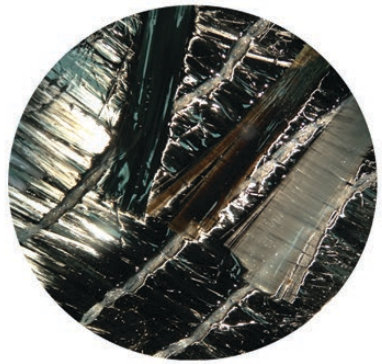


Nanosilica without POSS®



Nanosilica with POSS®





At less than1/10th the diameter of nanosilica, POSS® allows for increased flow properties while maintaining and enhancing the mechanical advantages of nanosilica. It is also excellent at fully wetting carbon, basalt, and glass fibers.

AVAILABILITY

EP4F09.01 is available in R&D and bulk quantites.

$325/100 g $800/1 kg

WARRANTY

The information contained herein is believed to be accurate and reliable. However, the user is responsible for determining the suitability and use of the final formulations/products. Hybrid Plastics® warrants that its products will meet specifications, but not merchantability or fitness for use.

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