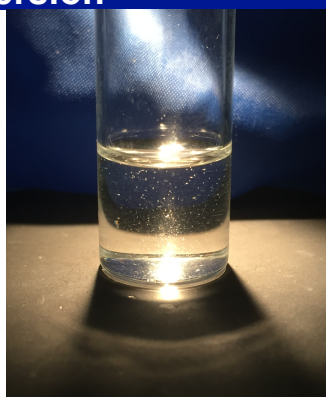
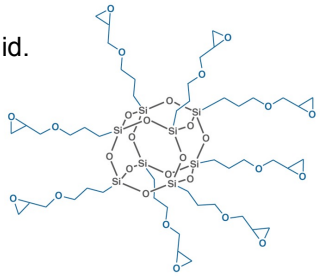
POSS® Nanosilica Dispersion



APPEARANCE
Clear, colorless liquid.



APPLICATIONS
Adhesives, coatings and resins desired to benefit from reduced shrinkage, scratch resistance, increased durability or high light transmission.

BENEFITS
EP0409 (glyidyl POSS®) traditionally has served as a high temperature reactive diluent and crosslinker for aromatic and aliphatic epoxy resins, affording 40%-70% viscosity reductions. EP0409 is often formulated with aliphatic amines to provide low viscosity, room temperature cure and high HDT resins and adhesives. The “POSS-HDT-Effect” is recognized by an increased rubbery plateau modulus. EP0409 POSS® also provides UVC/B sorption and resistance to moisture, oxidation and corrosion. The incorporation of nanosilica now further improves reinforcement and durability of EP0409 while retaining excellence at wetting of carbon, basalt and glass fibers. Solvent free processing too!

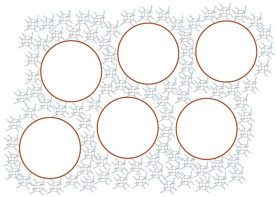
TYPICAL PROPERTIES

Appearance	Clear, colorless liquid
Viscosity (@25˚C)	10-15 Pa s
Viscosity (@50˚C)	3-4 Pa s
Viscosity (@75˚C)	1.0-1.5 Pa s
Thermal Stability (5% weight loss)	345˚C
Molecular Weight	1338-2007

REGULATORY STATUS
EP0409: INCI, TSCA, CAS 68611-45-0. Not a primary dermal irritant.

HANDLING PRECAUTIONS
Product safety information required for safe use is not included in this document. Before handling, read product and material safety data sheets and container labels for safe use, physical health and hazard information. For material safety data information, contact Hybrid.

POSS® cages dispersing larger nanosilica particles.



PRODUCT FEATURE:
POSS® cages are less than one-tenth the diameter of untreated nanosilica (left); POSS affords nanosilica (right) increased flow properties while maintaining and enhancing the mechanical advantages of nanosilica.

DESCRIPTION
EP4F09.07.30 is two reinforcing agents in one. EP0409 is a hybrid, 1.5 nm molecule with an inorganic silsesquioxane at the core, and organic glycidyl groups attached at the corners of the cage, which acts as a multifunctional crosslinker and dispersant. At 30 weight percent, 20 nm nanosilica is completely dispersed into the EP0409. This creates a clear, colorless liquid, which is easily utilized in coating formulations.

COMPATIBILITY

Solvents	
THF	Soluble
Chloroform	Soluble
Toulene	Soluble
Water	Insoluble
Hexane	Insoluble
Alphatic Resins	
Nearly all epoxy resins	Soluble
Nearly all acrylic resins	Soluble
Aromatic Resins	
Nearly all epoxy resins	Soluble
Nearly all acrylic resins	Soluble

RELATED LITERATURE
1. Dielectic POSS http://dx.doi.org/10.1016/j.tca.2012.04.012
2. Composite. https://doi:10.1016/j.compositesa.2010.06.005
DOI: 10.1021/cm9601493
3. CNT Disperison. https://doi/org/10.3390/ma10101131

www.hybridplastics.com
55 W.L. RUNNELS INDUSTRIAL DR., HATTIESBURG, MS 39401 P: 601-544-3466 FAX: 601-545-3103