

## Product Information-EP0408.01.30 (70 wt% EP0408 with 30 wt% PGMEA)

### Epoxy cyclohexyl POSS<sup>®</sup> Cage Mixture

EP0408.01.30 (previously known as EP3F08.01) features EP0408 POSS dissolved in PGMEA for environmental solvent coating applications.

#### APPEARANCE

Clear, colorless, low viscosity liquid.

#### DESCRIPTION

EP0408.01.30 contains the active EP0408 POSS, which is a hybrid molecule with an inorganic silsesquioxane core and organic cyclohexylaliphatic epoxy groups attached to the silicon vertices of the cage.

#### APPLICATIONS

EP0408 can be cured with aromatic and aliphatic amines or photo-initiators. EP0408 can also be utilized for chain extension of polyethers and HXNBR rubber.

In general, EP0408 provides increased use temperature as well as excellent water and solvent resistance. EP0408 provides chemical and thermal stability to coatings. It also can be surface glassified to a silica-like composition. Surface glassification allows for use as a tie layer for improved mar resistance.

#### EP0408.01.30 PROPERTIES

Appearance	Clear, colorless
Viscosity (@25°C)	500-560 mPa-s
Density	1.148 g/ml
Refractive Index	1.52
Formula Weight	1418.2 (octamer)
EEW for EP0408	177-182
Resin Solubility	aromatic and aliphatic resins

#### REGULATORY STATUS

INCI, EP0408 CAS: 329360-71-6.

EP0408 is 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 safety data sheets and container labels for safe use, physical health and hazard information. For safety data information, contact Hybrid.*

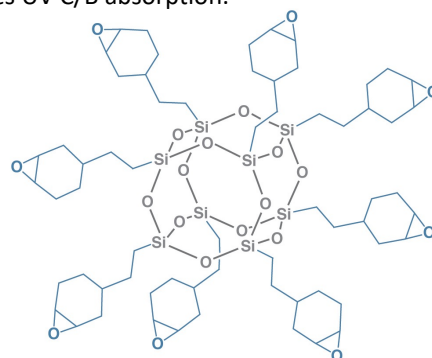


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#### PRODUCT BENEFITS:

EP0408 is an excellent compatibilizer (rheological diluent) and dispersant for particles, ingredients, and effects. It has a robust resistance to environmental degradation, such as moisture or oxidation, and provides UV C/B absorption.



#### FEATURED IMAGE

The EP0408 octamer structure is shown.

#### EP0408 STRUCTURE AND FUNCTION:

Compositionally, EP0408 is a mixture of cages having 8,10, and 12 silicon atoms, along with cage-like oligomers. The EP0408 POSS is a hybrid, 1.5 nm molecule, with an inorganic silsesquioxane core and organic epoxy cyclohexylaliphatic epoxy groups attached at the corners of the cage. These epoxy groups act as (multi)functional cross-links and dispersant sites. EP0408 shows excellent compatibility (and diluent properties) in urethane, epoxy, and acrylic resins. As a cross-linker, EP0408 retains modulus above glass transition and increases hardness.

#### RELATED LITERATURE

1. Cyanate ester resins: <http://dx.doi.org/10.1016/j.eurpolymj.2015.03.022>
2. Boron Nitride Dispersion: DOI 10.1002/adfm.201201824
3. PBT Chain Extension: *Journal of Applied Polymer Science* DOI 10.1002/app
4. 3-D Cationic Photoresist: DOI: 10.1039/b901226e
5. Photoresist: DOI 10.1007/S11664-009-1031-9
6. HXNBR Low K Curative: DOI 10.3144
7. SC15 Epoxy Additive: DOI 10.3144/expresspolymlett.2008.59