

## N-Phenylaminopropyl POSS<sup>®</sup> Cage Mixture

AM0281.01.30 (previously AM7C81.02) features AM0281 POSS dissolved in PGMEA for environmental solvent coating applications.

### APPEARANCE

Clear, colorless, low viscosity liquid.

### DESCRIPTION

AM0281.01.30 contains the active AM0281 POSS, a hybrid molecule with an inorganic silsesquioxane core and organic N-phenylaminopropyl groups attached to the silicon vertices of the cage.

### APPLICATIONS

AM0281 is reactive with epoxy and isocyanate ingredients. It provides enhanced impact resistance and dispersion capability. It is inherently adhesive.

In general, AM0281 provides increased use temperature, as well as, excellent water and solvent resistance. AM0281 provides chemical and thermal stability to coatings. It can also be surface glassified to a silica-like composition. Surface glassification allows for mar resistance or for use as a bondable tie layer.

### AM0281.01.30 PROPERTIES

Appearance	Clear, amber liquid
Viscosity (@25°C)	1000 mPa-s (AM0281.01.30)
Density	1.14 g/ml (AM0281.01.30)
Refractive Index	1.57 (octamer)
Formula Weight	1490.28 (octamer)
AEW for AM0281	130.41 (AM0281.01.30)
Resin Solubility	aromatic and aliphatic resins

### REGULATORY STATUS

INCI, AM0281 CAS: 1708993-28-5

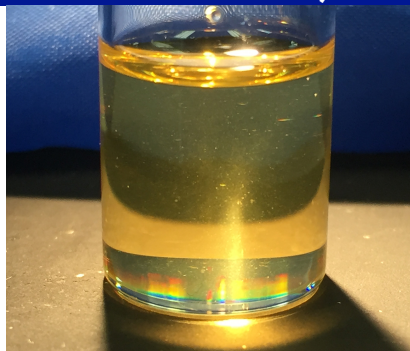
AM0281 is not a primary dermal irritant.

### 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.*

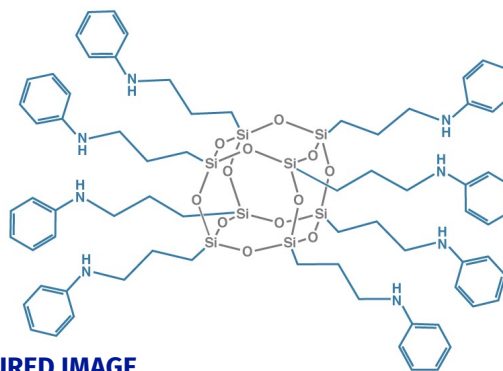


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### PRODUCT BENEFITS

AM0281 is an excellent compatibilizer and dispersant for particles, ingredients, and effects. It provides high temperature stability. It also has a robust resistance to environmental degradation, such as moisture and oxidation, and provides UV C/B absorption.



### FEATURED IMAGE

The AM0281 octamer structure is shown.

**EP0408 STRUCTURE AND FUNCTION** Compositionally, AM0281 is a mixture of cages having 8, 10, and 12 silicon atoms, along with cage-like oligomers. The AM0281 POSS octamer is a hybrid, 1.5 nm molecule, with an inorganic silsesquioxane core and organic N-phenylaminopropyl groups attached at the corners of the cage. These groups act as multifunctional reactive and dispersant arms. AM0281 shows high compatibility and diluent properties in urethane, epoxy, and acrylic resins. As a cross-linker, AM0281 retains modulus above glass transition and increases hardness.

### RELATED LITERATURE

1. Polyurethane crosslinker for modulus retainment at extended use temperature: DOI: 10.1021/ma101825j
2. Silica dispersion agent and interfacial compatibilizer: DOI 10.1039/c4ra01419G
3. Additive for dyeable PP fiber: DOI 10.1007/s12221-014-2370-6
4. Additive for TPU increased viscosity and T<sub>g</sub>, thermal stability enhancement: 10.1590/S1516-14392012005000085
5. Additive for degradation stability of epoxy resin: DOI 10.1002/pc.22271
6. Ballistic enhancement of Line X XS350 coating. DOI 10.1016/j.ijimpeng.2014.06.015
7. Explosive blast enhancement of Line X XS350 coating. DOI 10.1061/(ASCE)ST.1943-541X.0000361