

Methacryl POSS® Cage Mixture for Ultra-Low *k* Materials

MA0735 is a hybrid molecule with an inorganic silsequioxane at the core, and organic methacrylate groups attached at the corners of the cage. It is a clear, low viscosity, colorless oil. It is soluble in most polar organic solvents, acrylate and methacrylate monomers, and aromatic and aliphatic resins, but is water insoluble. Recent research has demonstrated that the hollow cage structure, and ability to self assemble into lamellar structures make MA0735 useful in producing ultra low *k* dielectric materials.

PHYSICAL PROPERTIES

Molecular/Chemical Formula:	$(C_7H_{11}O_2)_n(SiO_{1.5})_n$, n=8, 10, 12
Molecular Weight:	1433 - 2150
Appearance:	clear, colorless oil
Density:	1.20 g/mL
Refractive index:	1.46
Viscosity (@ 25°C):	18 Poise
Thermal Stability (5% weight loss):	386°C
Solvent Solubility:	THF, chloroform, acetone, acetonitrile, ethanol
Solvent Insolubility:	water
Resin Solubility:	aromatic and aliphatic resins

AVAILABILITY

MA0735, and its acrylate counterpart - MA0736, are available in R&D and bulk quantities. Contact info@hybridplastics.com for a quote.

Example pricing (\$/kg)

1kg	50kg	100kg	500kg
\$220	\$155	\$140	\$120

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.

Right: MA0735 is crosslinked with BPO to form a clear material with nanoscopic lamellar structures, as seen in the TEM image. This material has an ultra low dielectric constant (***k* = 1.85**).
from - Liu. *J. Appl. Poly. Sci.: A*, 2008, 46, 5157.

Below: Black thermoset of MA0735 and a trifunctional furan compound has an ultra low dielectric constant (***k* = 1.48**). TEM image shows a regular, lamellar structure. While crosslinked, this material may be removed with hot NMP.
from - Liu. *J. Mater. Chem.*, 2009, 19, 3643.

