

Hybrid Plastics®

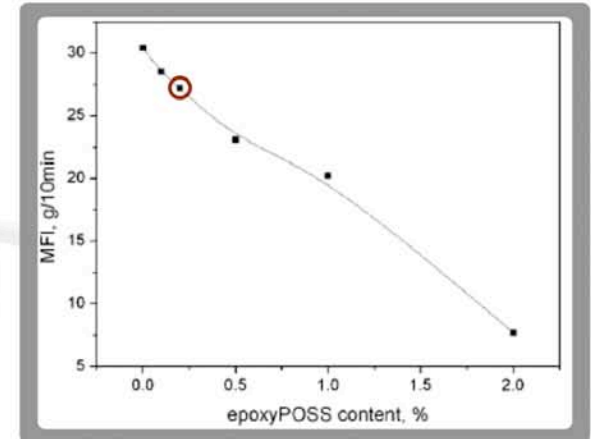
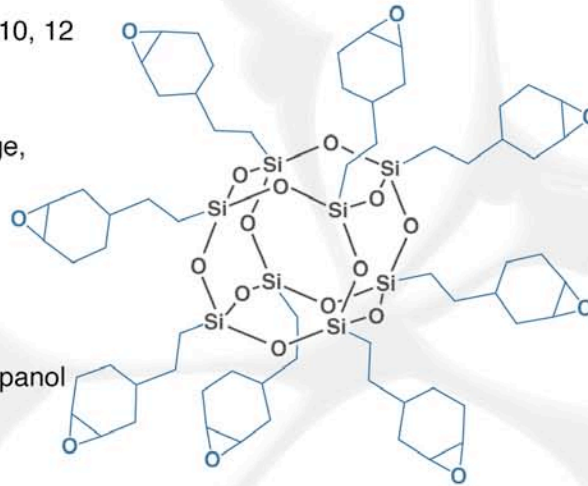
Superior Technology for Superior Products

EP0408 for Toughened Polyester

EP0408 is a hybrid molecule with an inorganic silsequioxane at the core, and organic epoxy cyclohexyl groups attached at the corners of the cage. It is a yellow, semi-solid compound. It is soluble in many polar organic solvents, and aromatic and aliphatic epoxy resins, but is insoluble in non-polar organic solvents. When very small amounts of EP0408 are melt blended into poly(butylene terephthalate), molecular weight of the polymer can be greatly increased. This leads to a significant improvement in mechanical properties quickly and at little expense.

PHYSICAL PROPERTIES

Molecular/Chemical Formula:	$(C_8H_{13}O)_n(SiO_{1.5})_n$, n=8, 10, 12
Molecular Weight:	1418 - 2127
Epoxy Equivalent Weight:	177
Appearance:	Clear, pale yellow/orange, semi-solid
Density:	1.24 g/mL
Refractive index:	1.52
Viscosity (@ 60°C):	500 Poise
Thermal Stability (5% weight loss):	403°C
Solvent Solubility:	THF, chloroform, isopropanol
Solvent Insolubility:	hexane
Resin Solubility:	aromatic and aliphatic epoxy resins



EP0408 increases molecular weight of PBT, thus decreasing MFI. At low loadings, the decrease is small.

AVAILABILITY

EP0408 is available in R&D and bulk quantities. Contact us at info@hybridplastics.com for a quote.

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.

POSS content (%)	Tensile strength (MPa)	Elongation at break (%)	Flexural strength (MPa)	Flexural modulus (MPa)	Izod impact strength (J/m)
0	50.8	25.5	72.4	2112	51.0
0.1	51.9	47.6	76.5	2259	50.1
0.2	52.7	83.4	78.3	2252	52.4

A small addition of EP0408 increases molecular weight and results in improvements in the mechanical properties of PBT

Data from: Zhou, et. al., Journal of Applied Polymer Science, Vol. 107, 825–830 (2008)