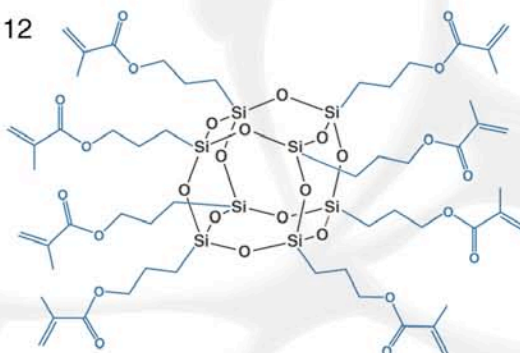


MA0735 POSS®: Flow & Dispersion Aid for NBR/HNBR Reinforcement

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 MA0735 is excellent at increasing the flow during compounding and molding of hydrogenated butadiene-acrylonitrile rubber and enhancing the mechanical properties and aging resistance after crosslinking. It also serves as a dispersion aid for precipitated silica.

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



Effect of MA0735 loading on mechanical properties of HNBR filled with 30wt% silica

MA0735 loading	Shore A hardness	Tensile Strength (MPa)	% Elongation at break
0	61.7	19.6	678
2	54.7	27.8	613
5	71.4	32.7	548
10	77.1	29.3	444

Effect of aging on mechanical properties of HNBR filled with 30wt% silica with and without 5wt% MA0735

Aging Process	Tensile Strength (MPa)	% Elongation at break
Climactic	15.7 (0% POSS)	461
	31.5 (5% POSS)	352
UV	13.0 (0% POSS)	317
	18.1 (5% POSS)	235

AVAILABILITY

MA0735, and its acrylate counterpart - MA0736, are available in R&D and bulk quantities. Contact 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.