PEG POSS® Cage Mixture

PG1190

PG1190 is a hybrid molecule with an inorganic silsesquioxane at the core and organic polyethylene glycol groups attached at the corners of the cage. This rigid core acts like molecular ball bearings and provides high film strength to reduce friction and wear. PG1190 is very stable even at high loadings and temperatures. It is also useful in lithium batteries, biomaterials, cosmetics, and dispersion of oxide and carbon particles.

R= -(CH₂)₃(OCH₂CH₂)_mOCH₃ m-10

 $(C_{2m+3}H_{4m+7}O_{m+1})_n(SiO_{1.5})_n$ n = 8, 10, 12 (n=8 shown), m \u2213.3

FW 5576.6 D_4^{20} 1.09 n_D^{20} 1.45

* Cage content ≥ 92%

Key Properties

Appearance: clear, colorless liquid Viscosity (@ 25°C): 280 centipoise Thermal Stability (5% wt loss): 250°C Solvent Solubility: water, alcohols Solvent Insolubility: hexane

Resin Solubility: polyethers and polyesters





Standard Machine Oil PG119
Comparison of lubricating properties of PG1190 vs. standard machine oil

Relevant Literature

- Cell migration and proliferation Nano LIFE, Vol. 2, No. 3 (2011)
- Additive for Unique Cosmetic Properties Cosmetics & Toiletries, August 2008, pg 51-55.
- Electrolytes for Lithium Batteries *Journal of The Electrochemical Society*, 153 (2) A239-A248 (2006)

CAS 1255649-48-9 Authorizations: None

\$150/100g \$320/kg