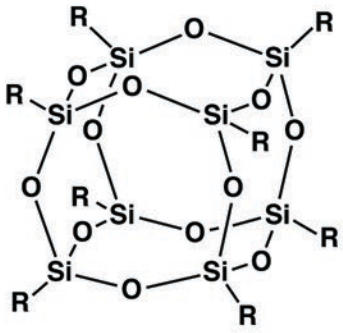
PEG POSS® Cage Mixture **PG1190**

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 = $-CH_2CH_2(OCH_2CH_2)_mOCH_3$, m = ~13.3

$(C_{2m+3}H_{4m+7}O_{m+1})_n(SiO_{1.5})_n$ FW 5576.6 D_4^{20} 1.09 n_D^{20} 1.45

n = 8, 10, 12 (n=8 shown), m ≅13.3

** Cage content ≥ 92%*

HYBRID PLASTICS

PEGs

Key Properties

Appearance: clear, colorless liquid
Viscosity (@ 25ºC): 280 centipoise
Thermal Stability (5% wt loss): 250ºC
Solvent Solubility: water, alcohols
Solvent Insolubility: hexane
Resin Solubility: polyethers and polyesters

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**