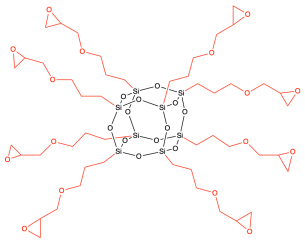
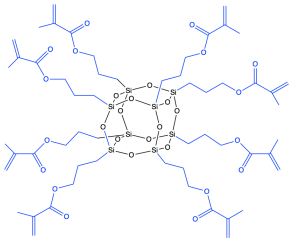
POSS® Dispersants for Carbons

√ Dispersion **√ Levelling**
√ Active Rheological Diluent **√ Coupling and Crosslinking**

POSS® dispersants continue to see expanded uses and functional capabilities. Hybrid Plastics' development team works with each customer to ensure the best match of our proprietary Nanostructured® additives to meet each application need and budget.

Liquid POSS® dispersants provide rapid wet-out and steric stabilization of carbons within a formulation. Reactive systems such as EP0409, MA0735, HC0413.31, HC0713.31 and HC040713.332 are designed to disperse and cure to prevent migration. Hybrid's PG1190 additive provides a rapid wet-out of carbon and is an extremely effective rheological diluent. The HC0413.31, HC0713.31, and HC040713.332 additives also provide rapid wet-outs and rheological diluency, in combination with crosslinking.


EP0409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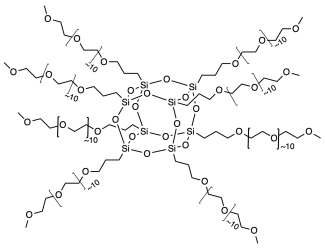
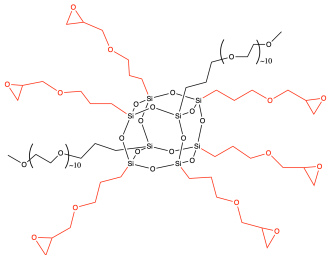
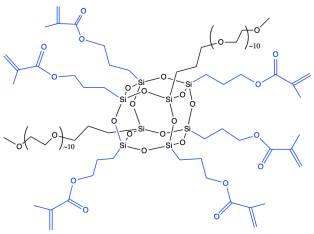
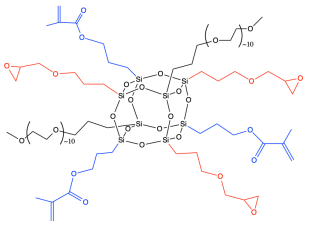

PG1190


HC0413.31


HC0713.31


HC040713.332

The following process provides a starting point for all types of carbon. The formulator should be prepared to adjust the loading level of POSS® and carbon to optimize properties.

A 10:1 POSS:CNT ratio is suggested to achieve ppm level loadings of CNTs for ESD coating applications.

Suggested Use Process:

1. Dry mix the POSS® and carbon using shear or tumble mixing.
2. Allow 15-30 minutes to achieve maximum wet-out of the POSS® into the carbon. *Wet-out is visually achieved when a deep black color and high gloss are present on the carbon.*
3. Add the POSS® treated carbon to the base resin and mix accordingly to achieve dispersion. *Mixing may require use of a Cowles* blade or rotor-stator operating *between 1000-3000 rpm. A reduction of viscosity will likely result once the addition of the POSS® treated carbon has become properly dispersed.*
4. Test the dispersion for uniformity by spreading an aliquot over a flat surface. Additional mixing or adjustment of shear may be necessary to achieve uniformity.
5. Add the remaining formulation components.
6. Utilize the formulation when mixing is complete.
7. During use, occasional restirring may be necessary due to solvent evaporation or settling.

Faster Alternate Process:

1. Add POSS® directly to the base resin and mix.
2. Add the dry carbon to the mix to achieve dispersion. Mixing may require use of a Cowles blade operating between1000-3000 rpm. A reduction of viscosity will likely result once the addition of the POSS treated carbon has become properly dispersed.
3. Follow steps 4-7 above.

Technical and Safety Data Sheets for each POSS® additive can be found at:
https://www.hybridplastics.com/products/

hybrid
THE CREATORS OF POSS®