

Hybrid Plastics®

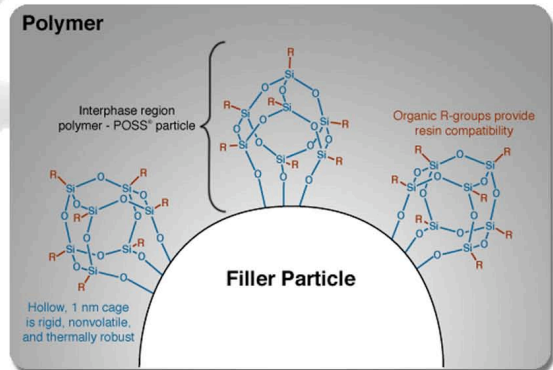
Superior Technology for Superior Products

POSS® Titania

POSS® Titania utilizes POSS® technology to achieve particles that are truly dispersible in a variety of media, including thermoplastics, thermosets, and solvent-borne systems.

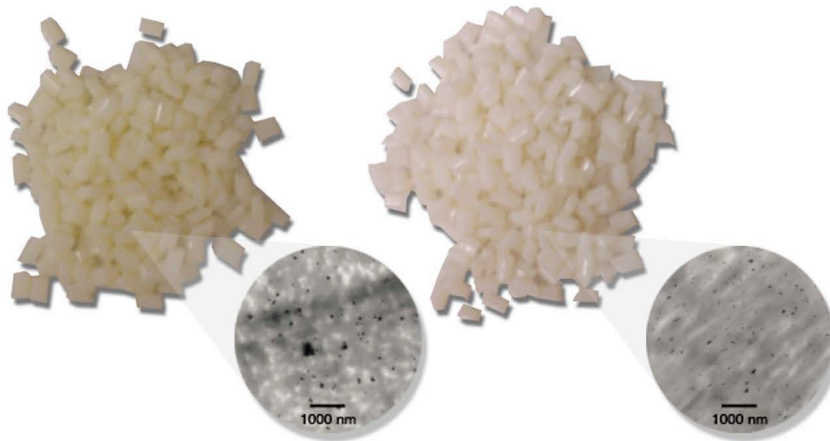
MECHANISM OF MODIFICATION

POSS® silanols are an open cage molecule with reactive silanol groups. These silanols bind to particles and fillers, such as glass, silica, and metal oxides. With the ability to vary the organic R-group, POSS® silanols can be custom tailored to the polymer matrix for optimum compatibility. Because of POSS's larger surface area, polymer-POSS®-particle interaction increases dramatically in comparison to conventional silane coupling agents.



ENHANCED DISPERSION

Because the individual Titania particles have a monolayer surface of compatibilizing POSS® coating, true nanodispersions become possible. The TEM micrographs below show a dispersion of titanium dioxide in polypropylene without POSS® (left) and with POSS® (right). These samples were made with identical melt compounding processes. In this case, POSS® enhanced dispersion and decreased particle size from 100 nm to 30 nm.



Samples and TEM micrographs of TiO₂ dispersed in polypropylene without POSS coating (left), and with POSS coating (right)



Titanium dioxide in hexanes with (right) and without (left) POSS coating

SUGGESTED APPLICATIONS

Improving whiteness and efficiency of TiO₂ in thermoplastics, thermosets, solvent based coatings, inks, etc. Because POSS® coating works in a general way for many types and grades of metal, metal oxides, and organic particles, please inquire with one of our experienced material scientists for related uses. POSS® Titania is available in R&D sizes, bulk pails and drums.

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.

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