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SILQUEST* SILANES

for filler treatment in plastic applications

Product Description

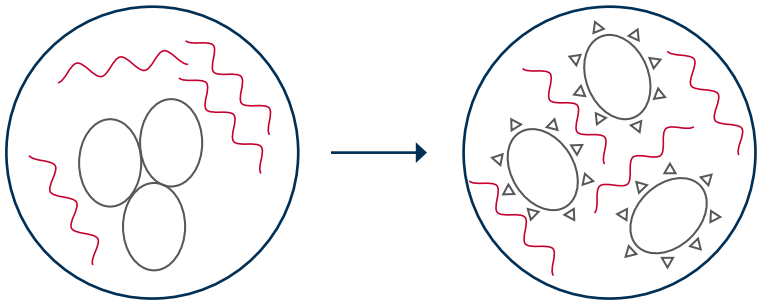
Inorganic fillers are used to reinforce a number of plastic resins. Silanes treated fillers can improve the strength and end use properties of these composites. Often it is advantageous to pre-treat the fillers with silane instead of integrally blending the silane with the filler and plastic resins. These advantages can include more uniform coating of the silane onto the filler and lower use levels when compared to integral blending processes.

Filler particles tend to agglomerate in liquid resins or polymer melts. Poor dispersion creates areas of high and low resin concentrations in the composite part.

Key Features & Typical Benefits

Silane treated filler particles are used to optimize performance by providing:

- Very stable mixture with less agglomeration
- Uniform distribution of filler in resin
- Advanced coupling of filler to polymer matrix



POOR DISPERSION
Untreated filler in polymer

GOOD DISPERSION
Treated filler in polymer

Product Selections

Compatibility of Silquest* silanes varies with the resin being used in composite fabrication. A general guide to silane selection is provided below.

Thermoplastics

POLYMER MATRIX	SILANE TO CONSIDER	SILANE TO CONSIDER FOR LOW VOC
Polyamide (PA6, PA6.6 PA12)	Silquest* A-1108, A-1100 or A-187 silane	Silquest VS-142 or VX-225 silane
Polyester (PET, PBT, PLA)	Silquest A-1100* or A-187 silane	Silquest VS-142 silane
Polypropylene (PP)	Silquest* A-174NT silane	
Polyethylene (PE)	Silquest A-151NT or A-174NT silane	Silquest G-170 silane
Styrenics (ABS, SAN, ASA)	Silquest A-187* silane	
Polyetheretherketone (PEEK)	Silquest A-1100 or A-187 silane	Silquest VS-142 silane
Polyphenylsulfone (PPS)	Silquest A-1100 silane	Silquest VS-142 silane
Polycarbonate (PC)	Silquest A-1100 silane	Silquest VS-142 silane
Polyimide (PI)	Silquest A-1100 silane or Y-9669 silane	Silquest VS-142 silane

Thermosets

POLYMER MATRIX	SILANE TO CONSIDER	SILANE TO CONSIDER FOR LOW VOC
Epoxy (EP)	Silquest A-186 or A-187 silane	
Unsaturated Polyester (UP)	Silquest A-174NT silane	Silquest G-170 silane

General Considerations For Use
Fillers are typically treated by dissolving 2-5 wt% silane in an alcohol/water (90/10 by volume) mixture. Acidify non-amino silanes to pH =4 with acetic acid. The silane solution is applied to the filler using conventional equipment such as blender or mixers. If low VOC application is desired, silanes can be dissolved in a water only solution or applied as received to the filler with adequate mixing.

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