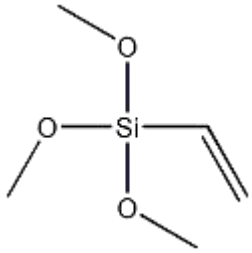
Vinyltrimethoxysilane

Chemical Structure:



Typical Physical Properties

Product No.:	KBR-A-171
Chemical Name:	Vinyltrimethoxysilane
CAS No.:	2768-02-7
EINECS No.:	220-449-8
Molecular Formula:	C5H12O3Si
Molecular Weight:	148.23
Appearance:	Colorless transparent liquid
Density(ρ20, g/cm3):	0.9718 ± 0.0050
Refractive Index(n25D)：	1.3925 ± 0.0050
Purity:	99%

Applications

Polymer Modification

KBR-A-171 is used to modify polyethylene and other polymers by grafting its vinyl group to the polymer backbone using a radical initiator, such as peroxide. This provides a polymer with pendant trimethoxysilyl groups that may be used as moisture-activated crosslinking sites via hydrolysis of the alkoxy groups followed by condensation of the resulting silanols.

Crosslinking of Silane-Grafted Polymers

The reaction of Silane-grafted polyethylene to form a crosslinked or vulcanized polyethylene uses water to form the crosslinks. This technology is widely used around the world for commercial applications in wire and cable insulation, tubing, and other similar uses.

The basic reaction sequence is as follows: polyethylene is reacted (grafted) with vinyltrimethoxysilane, using a peroxide initiator, in an extruder. The grafted polyethylene is then formed into a finished product, such as cable jacketing, wire insulation, or pipe. The forming step is usually done by a second extrusion, during which a catalyst for the moisture-cure step is added. Finally, the formed article is exposed to moisture or hot water to cause hydrolysis of the Silane and condensation to form crosslinks via Si-O-Si bond formation.

Benefits of Crosslinking

Higher maximum use temperature
Reduced deformation under load (creep)
Improved chemical resistance
Superior environmental stress crack resistance
Increased abrasion resistance
Improved impact strength
Memory characteristics (shrink film, tubing)
Improved impact strength

Advantages of Silane Crosslinking over Radiation or Peroxide Crosslinking

Low capital investment
Low operating (energy) costs
Higher productivity
Processing versatility
Thick, thin, or variable thicknesses possible
Complex shaps possible
Wilder processing latitude (control of premature crosslinking)
Useful with filled composites
Applicable to all polyethylene densities and copolymers.

Safety

Risk Statements :	10-36/37/38-20
Safety Statements :	26-36/37/39-37/39-16
UN No.:	UN 1993 3/PG 2
Packing Group:	III
Hazard Class:	3
TSCA	YES
HS Code :	29310095

Packaging

210LIron Drum：200kg/drum
1000L IBCContainer: 970kg/containe