



Silicones

Powerful like a major, flexible like a formulator

BRB Silanil® 780

Vinyl(triethoxy)silane

Description

BRB Silanil® 780 is a reactive chemical containing vinyl functionality and silane hydrolysable group, triethoxy groups, which is slower hydrolyzing than methoxy group providing beneficial in term of polymerization control ability. CAS# is specified as 78-08-0 .

BRB Silanil® 780 is commonly used for modification of various types of emulsion polymerization. It can be added to latex as monomer to form vinyl modified latexes and can also be added to various synthetic rubber to form vinyl co-polymers.

When treated on mineral fillers, its primary task is to increase the dispersing ability. **BRB Silanil® 780** can also be used for hydrophobic modification purpose which hydrolysable group is able to bond or interact with inorganic surfaces/fillers such as glass , quartz and steel, then leave hydrophobic vinyl group on top.

Features

BRB Silanil® 780 is reactive in free radical chemistry as in hydrolysis chemistry. **BRB Silanil® 780** forms siloxane bonds through moisture curing.

Benefits

- Improves water and abrasion resistance when modify polymer chains
- Good bonding and adhesion on inorganic fillers or substrates
- Enhances mechanical properties of modified polymers
- Improves scratch resistance in carboxylated latexes

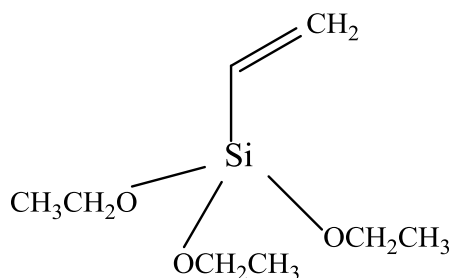
Typical Data

Parameter	Unit	Value
Appearance		Clear liquid
Specific gravity at 25°C		0.905
Refractive index at 25°C		1.397
Flash point	°C	44
Boiling point	°C	160
Purity	%	97
Molecular Weight		190

Warranty: The information given in this product data sheet are believed to be fully accurate. However, BRB International BV shall not be liable for its content and make no warranty with respect thereto. For additional information we request you to contact BRB International BV visit our web-site: www.brb-international.com



Chemical Structure



How To Use

BRB Silanil® 780 will be hydrolysed when combined with water under to form silanol reactive group and released by product as ethanol.

BRB Silanil® 780's Hydrolysis rate is slower than BRB Silanil® 276 due to bulkier ethoxy hydrolysable groups which is beneficial in term of polymerization control ability. While vinyl functional group will have organic chemical bond or graft on polymer chain or organic surface.

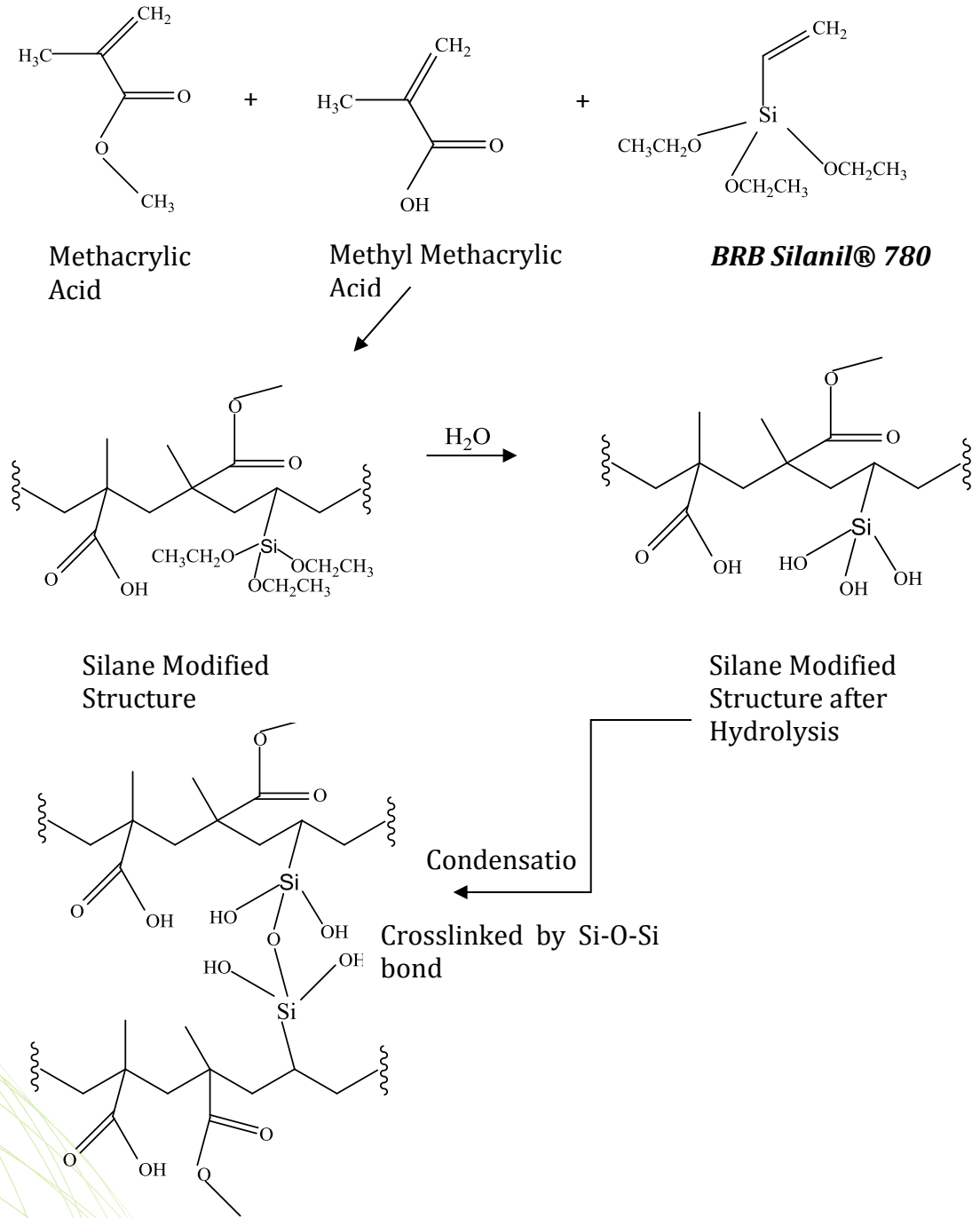
Potential Application

Crosslinker for carboxylated latex e.g. acrylic and SBR

BRB Silanil® 780 is widely used to modify polymer structures e.g. vinyl modified latexes and various synthetic rubber to form vinyl copolymers, especially in surface coating resin for both of waterborne and solventborne such as acrylic latex which is commonly added in polymerization step either in pre-emulsion tank or monomer mixture tank .



Example of crosslinking method is illustrated below :



Application Recommendation

- In Solventborne : recommended silane dosage at 0.4-10.0% on total monomer wt.



- In Waterborne : recommended silane dosage at 0.1-2.0% on total monomer wt.
- For emulsion polymerization, it is recommended to add silane in the Pre-emulsion stage. In case of None pre-emulsion stage, recommended to add silane into the monomixture at the remaining of 10-15% monomers feeding time .
- For Waterborne : pH is recommended close to neutral or ≤ 8.5 pH for stability purpose.

Benefits after Crosslinking

- ✓ Increase film hardness
- ✓ Improve scrub and abrasion resistance
- ✓ Improve solvent, acid and base resistance
- ✓ Increase water resistance
- ✓ Overall better mechanical properties of modified polymer

Mineral Filler Treatment

In the case of mineral fillers, the mineral can be treated by mixing with the silane solution at very low shear for several minutes. The silane solution can be prepared by the mixture of 1:8:1 by volume of **BRB Silanil® 780** : isopropanol : water and a few drops of acetic acid can be added to accelerate hydrolysis rate and coupling of silane on filler surface. After applying the silane, the glass or mineral surface should be dried briefly at 104°C to 121°C (220-250°F) to effect condensation of silanol groups at the surface and to remove traces of ethanol from hydrolysis of the ethoxysilane. Optimum application and drying conditions such as time and temperature should be determined for each application prior to use in a commercial process.

Storage Recommendation

Store in dry and cool (approx. 20-25 ° C) condition. After opening, avoid exposure to atmospheric moisture. Inert gas e.g. N₂ gas is required to purge into the container after opening to prevent hydrolysis by moisture.

A Product Safety Data Sheet should be obtained from your BRB office prior to use.
ATTENTION: Before handling, read product information, Product Safety Data Sheets and container labels for safe use, and any physical and/or health hazard information.