



A Subsidiary of PETRONAS Chemicals Group

# PRODUCT DATA SHEET

## BRB Silanil® 581

### Silanes

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### Amino alkyl siloxane aqueous solution



#### Description

*BRB Silanil® 581* is an aqueous solution of an aminoalkyl siloxane, which is hydrolyzed from about 40% *BRB Silanil® 919* (gamma aminopropyltriethoxysilane). CAS# is specified as 58160-99-9.

*BRB Silanil® 581* is suitable to be used in waterborne system with excellent water solubility and stability which improves significantly the adhesion and coupling between organic resins and inorganic surfaces.

#### Features

- Improved adhesion between organic resins and inorganic substrates
- Improved mechanical properties by coupling function on inorganic fillers for waterborne adhesives and coatings
- Applicable in waterborne systems with good product stability which is recommended for filler treatment, insulation glass fiber binder and water based primer.

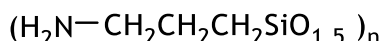
#### Benefits

- Can easily be used in waterborne systems e.g. acrylics latexes, polyurethane dispersion (PUD), etc.
- Be suitable for resin system which is sensitive to alcohol by product released by silane's hydrolysis
- Soluble in water and alcohols.
- Reduced VOC and hazardous air pollution substances (HAPS) emissions from alcohol by product.

#### Typical Data

Parameter	Unit	Value
Appearance		Clear to slightly yellowish
Viscosity at 25°C	cSt	3 – 4
Specific gravity at 25°C	kg/m <sup>3</sup>	1.02
Flash Point, closed cup	°C	33

#### Chemical Structure



#### How to Use

*BRB Silanil® 581* is hydrolyzed silane which is no more ethanol released as by product. However, silanol functionality still be able to bond inorganic fillers or substrates while amino functionality is grafted or interacted on organic polymer chain.

### Potential Applications

#### Glass Fiber and Mineral Filler Treatment

**BRB Silanil® 581** can be applied to inorganic surfaces e.g. glass fibers as a dilute aqueous solution. 0.2 to 1.5 % is recommended to add together with organic resin, water and other additives to form film on glass surface during size process.

In the case of siliceous mineral fillers, the mineral can be treated by slurring in the aqueous solution likes **BRB Silanil® 581** at 0.2-3.0 % based on filler weight.

The silane dosage is up to particle size or surface area of fillers which is shown in the table I.

After applying this silane, the glass or mineral surface can be air-dried or dried briefly at 104 to 121°C (220-250 °F) to effect complete condensation of silanol groups at the surface and to remove water. Optimum application and drying conditions, such as time and temperature, should be determined for each application before use in a commercial process.

Table I. BRB Silanil® 581 dosage recommendation based on particle size of mineral fillers.

Average particle size of fillers	BRB Silanil® 581 dosage (% on filler wt.)
< 1 micron	3.0%
1 to 10 microns	2.0%
10 to 20 microns	1.5%
> 20 microns	0.2 – 0.5%

#### Waterbased Primer

**BRB Silanil® 581** can be diluted by DI water to be 10-20% concentration and apply on the inorganic substrates as primer before top coat to improve adhesion performance. It is recommended to wipe onto the glass or metal substrate; dry at 75°C for 15 minutes or at room temperature for 30 minutes; then apply coating.

#### Adhesion Promoter in Coatings and Adhesives

**BRB Silanil® 581** will also improve the adhesion of many coatings and adhesives, acrylics latexes, polyurethane dispersion (PUD) and other waterbased systems, to glass and metal surfaces. **BRB Silanil® 581** can be added directly to a resin system without other additives or pigments at 0.5 to 4.0 % based on resin solid weight to promote unprimed adhesion.

#### Storage Recommendation

Store in dry and cool (approx. 20-25 ° C) condition. After opening, avoid exposure to atmospheric moisture. Inert gas e.g. N<sub>2</sub> 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.

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## FOR MORE INFORMATION

Please contact

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## IMPORTANT NOTICE

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