



BRB Silanil 919

3-aminopropyltriethoxysilane



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Description

BRB SILANIL 919 is a reactive chemical containing an aminopropyl organic group and a triethoxysilyl inorganic group.

Application

Chemically, **BRB Silanil 919** is designated gamma aminopropyltriethoxysilane. Possessing both organic and inorganic reactivity, **BRB Silanil 919** can react with organic resins and elastomers as well as with the surface of inorganic materials such as fiberglass and silica. This aminopropyl functional silane is one of a series of organofunctional silane chemicals.

Features

- Improves adhesion
- Increases composite strength properties
- Increased composite wet and dry tensile strength and modulus
- Increased composite wet and dry flexural strength and modulus
- Increased wet and dry compressive strength
- Increased transparency of fiberglass composites

Benefits

- Good coupling agent to improve adhesion of many plastics, resins and elastomers to inorganic materials and surfaces
- Very useful for improving the properties of mineral filled rubber
- Proven additive for foundry resins

Typical Data

Parameter	Unit	Value
Appearance		Colourless to very pale yellow
Specific gravity at 25°C		0.946
Viscosity at 25°C	cSt	1.6
Flash point, closed cup	°C	96
Purity	%	98

How to Use

BRB Silanil 919 is particularly recommended for fiberglass-reinforced phenolic, melamine, and epoxy thermoset composites, either as a fiberglass finish or as a resinous additive. Data suggests that this silane can also improve the performance of these types of thermoset resins when used as mineral binders in foundry and abrasive composite applications. When used as a resin additive, generally the silane is added at a level of 1 percent based on the weight of the resin solids. For each specific application, the optimum level of additive should be determined by testing several concentrations. When used as an additive to epoxy coating, **BRB Silanil 919** improves adhesion of the coating, particularly in very humid environments.

BRB Silanil 919 has also been found to be an effective coupling agent for clay-reinforced elastomers such as natural and nitrile rubber. The silane-treated clay provides improvement in both physical and dynamic properties compared with similar cured elastomers containing untreated clay. **BRB Silanil 919** will also improve the adhesion of many coatings (urethanes, epoxies, phenolics, and others) to glass and metal surfaces. Best performance is realized when **BRB Silanil 919** is used as a primer, although addition to the coating can also give benefits.

BRB Silanil 919 can be applied to inorganic surfaces as a dilute aqueous solution (0.1 to 0.5 percent silane). Aqueous solutions can be prepared by simply adding the silane to water and stirring. (CAUTION: Poor agitation when adding **BRB Silanil 919** to water can result in locally high concentration that may form gel particles.) It is commonly recommended that the silane solution be acidified to a pH of 3.5 to 6 (3.5 to 4 is optimal) with an organic acid such as acetic or oxalic, to obtain optimum performance of reinforcing material such as fiberglass. Inorganic surfaces can be treated with the aqueous solution by any suitable method. In the case of siliceous mineral fillers, the mineral can be treated by slurring in the aqueous solution or mixing with the silane at very high shear (with a Waring 2 or Welex 3 blender) as a 10 percent solution in isopropanol or etherglycol. After applying this silane, the glass or mineral surface can be air-dried or dried briefly at 105 to 121 °C to effect complete condensation of silanol groups at the surface and to remove water and/or traces of ethanol from hydrolysis. Optimum application and drying conditions, such as time and temperature, should be determined for each application before use in a commercial process.

For use as a primer, two methods are suggested:

Method 1:

Dissolve 5 percent **BRB Silanil 919** in isopropyl alcohol; wipe onto the glass or metal substrate; dry at 75 °C for 15 minutes or at room temperature for 30 minutes; then apply coating.

Method 2:

To 40 percent **BRB Silanil 919** in isopropanol, add 5 percent water; allow to stand for 6 hours; dilute to 5 percent active with isopropyl alcohol; then apply as in method 1.

Property	
Benefit - Primary	Adhesion Promotion
Benefit - Secondary	Pigment Treatment
Compatible Binder Systems	Acrylic, alkyd, epoxy, polyester, polyurethane
Formulating Step Options	Should be added during the final let-down
Typical Concentrations	0.05-0.1 wt%
Suitable Diluents	Alcohols/water
FDA Compliance, 21 CFR	175.105

How to Use

When stored at or below 25 °C in the original unopened containers, this product has a usable life of 24 months from the date of production. **after opening, avoid exposure to atmospheric moisture to prevent gelation.**

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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 or visit our web-site: www.brb-international.com