

GENIOSIL® XL 10

Vinyltrimethoxysilane



CAS [2768-02-7]

Characteristics

Clear, colorless liquid with a characteristic odor.

Key features

GENIOSIL® XL 10 is a vinylalkoxysilane. It hydrolyzes in the presence of moisture (methanol is released) to form silanols, which can then react with themselves to produce siloxanes.

Applications

GENIOSIL® XL 10 is used in the production of pipes and cables made of silane-crosslinked polyethylene (PE-Xb), as a water scavenger during the production of silane-crosslinking adhesive and sealant formulations, and as co-monomers in the production of silane-modified binders for surface coatings.

Product data

Empirical formula			C ₅ H ₁₂ O ₃ Si
CAS number			2768-02-7
Molecular weight		g/Mol	148.2
Boiling point		°C (1,013 hPa)	122
Flash point	DIN 51755	°C	24
Ignition temperature	DIN 51794	°C	240
Density	DIN 51757	g/cm ³ (25 °C)	0.97
Refractive index		(25 °C / D)	1.391
Viscosity	DIN 51562	mPa·s (25 °C)	0.6
Purity		%	min. 99
Hydrolyzable chloride (as HCl)		mg/kg	max. 10
Dimer content (GC)		%	max. 0.3
Methanol content (GC)		%	max. 0.3

These figures are intended as a guide and should not be used in preparing specifications.

Properties

Pipes and cables produced from silane-crosslinked polyethylene (PE-Xb) using GENIOSIL® XL 10 are more resistant to heat and weathering than products made from non-crosslinked polyethylene. They also have improved electrical properties. The storage stability is greatly enhanced in formulations of silane-crosslinking adhesives and sealants. Use of GENIOSIL® XL 10 as a co-monomer in polymer dispersions results in binders which exhibit much improved wet scrub resistance and higher abrasion resistance thanks to crosslinking and improved adhesion to the substrate.

Processing

1. Grafting of GENIOSIL® XL 10

The radical grafting of GENIOSIL® XL 10 to polyolefins, such as HDPE and LDPE, is typically effected via reactive extrusion, using peroxides as catalysts. Usually, 1 - 2 wt % GENIOSIL® XL 10 is required, expressed in terms of the polyolefin. Polyolefins grafted with GENIOSIL® XL 10 are moisture-cured after molding.

2. GENIOSIL® XL 10 as an additive in silane-crosslinking formulations

In silane-crosslinking formulations (e.g. silane-terminated polyethers, polyurethanes and polysiloxanes), GENIOSIL® XL 10 is mixed into the formulation as an additive to prevent premature crosslinking due to trace moisture. Processing is effected by means of standard mixing methods (e.g. paddle agitator, high-speed stirrer, kneader). GENIOSIL® XL 10 can be added before or during incorporation of the polymer. The amount added will depend on the water content and pre-treatment of the components; usually around one percent by weight is required.

3. GENIOSIL® XL 10 as a co-monomer in polymer dispersions

To incorporate GENIOSIL® XL 10 in organic polymer dispersions by way of co-polymerization, it is added as co-monomer – along with typically used monomers (e.g. ethylene, vinyl acetate, styrene, acrylate) and free-radical initiators (diazo compounds or peroxides) – during production of the emulsion polymer.

Storage stability

GENIOSIL® XL 10 has a shelf life of at least 24 months, if stored in closed original containers at 25 °C. The “Best use before end” date of each batch is shown on the product label.

If the material is kept beyond the shelf life recommended on the product label, it is not necessarily unusable, but a quality control should be performed on the properties relevant to the application.

Further information

Information on available container sizes can be requested from WACKER subsidiaries.

Safety instructions

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. These are available on request from WACKER subsidiaries.

Notes:

The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.

Management system certified
to ISO 9001
and ISO 14001

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Please address all technical ques-
tions concerning quality and product
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