

Dynasylan® HYDROSIL 1153

Aqueous oligomeric aminoalkylfunctional silane hydrolysate

Technical data

Properties and test methods	Value	Unit	Method
Amine content as NH ₂	6.1 - 6.7	wt.-%	SAA 1078
Density (20 °C)	1.1 - 1.2	g/cm ³	DIN 51757
Flash point	> = 95	°C	DIN EN 22719
pH (20 °C)	11.5 - 12	-	DIN 19268
Viscosity (20 °C)	50 - 150	mPa·s	DIN 53015

Registrations

Dynasylan® HYDROSIL 1153

DSL/NDSL (Canada):	Yes
PICCS (Philippines):	Yes
TSCA (USA):	Yes
IECSC (P.R. China):	Yes
ENCS (Japan):	Yes
ECL (South Korea):	Yes
EINECS/ELINCS (EU):	Yes
AICS (Australia):	Yes
REACH (Europe)	Exempted

Dynasylan® HYDROSIL 1153 is an amino-functional silane which acts as an adhesion promoter between inorganic materials (for example glass, metals and fillers) and organic polymers (thermosets, thermoplastics and elastomers).

Dynasylan® HYDROSIL 1153 is a colorless to slightly yellowish aqueous solution with an amine-like odour, miscible, with alcohols or water.

Safety and handling

Before considering the use of Dynasylan® products please read its Safety Data Sheet (SDS) thoroughly for safety and toxicological data as well as for information on proper transportation, storage and use. The Safety Data Sheet is available after registration on our website www.dynasylan.com or upon request from your local representative, customer service or from Evonik Operations GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

Packaging, storage and shelf life

Dynasylan® HYDROSIL 1153 is supplied in 25 kg PE cans, 200 kg drums and 1.000 kg IBC.

It is recommended to store Dynasylan® HYDROSIL 1153 above 4°C.

However, singular freezing does not influence the product quality. Frozen product is re-useable after complete thawing and homogenization. Accurate stirring is sufficient for homogenization.

Dynasylan® HYDROSIL 1153 has a shelf life of minimum 12 months from delivery in an originally sealed drum or IBC.

Properties and applications

Dynasylan® HYDROSIL 1153 is an important additive in many applications. Particular advantages arise in water-based systems.

Examples:

- mineral wool: insulating materials
- abrasives: as additive to phenolic resin binders
- glass fibre/glass fabric composites: as size constituent or finish
- glass and metal primers
- foundry resins: as an additive to cold-curing phenolic and furane resins
- adhesives and sealants: as additive in primers and in adhesives and sealants to improve adhesion on glass, metals and plastics
- mineral-filled composites: for pretreatment of glass beads fillers and pigments or as additive
- paints and coatings: as additive and primer for improving adhesion to the substrate.

Aqueous diluting example for Dynasylan® HYDROSIL 1153 to get a reactive hydrolyzate with 2 % active content:

22.7 g Dynasylan® HYDROSIL 1153 are stirred in 977.3 g deionized water. The hydrolyzate is stirred for min. 30 min. before use.

The most important effects which can be achieved using Dynasylan® HYDROSIL 1153 are:

improvement in product properties, such as

- mechanical properties, for example flexural strength, tensile strength, impact strength and modulus of elasticity
- moisture and corrosion resistance

improvement in processing properties, such as

- adhesion
- better filler dispersion
- high flash point

Reactivity

Dynasylan® HYDROSIL 1153 is a bifunctional organic compound in which the functional silanol groups can be bonded to an inorganic substrate; the organophilic amino group can interact with a suitable polymer. The particular advantage of Dynasylan® HYDROSIL 1153 compared with the corresponding aminofunctional alkoxy silanes is its nonflammability, the fact that no volatile organic constituents are released and the fact that almost no particular equipment safety precautions are necessary. Dynasylan® HYDROSIL 1153 can be diluted with water in all proportions. The hydrolysates are long-term stable.

Examples of suitable inorganic substrates are:

glass, glass fibres, glass beads, glass wool, mineral wool, silicic acid, quartz, sand, cristobalite, wollastonite and mica; also suitable are aluminium trihydroxide, kaolin, talc, other silicate fillers, metal oxides and metals. Examples of particularly suitable polymers are epoxy resins, polyurethanes, phenolic resins, furane resins, melamine resins, PA, PBT, PC, EVA, PP, PVAC, acrylates and silicone.

Processing

Dynasylan® HYDROSIL 1153 can be applied advantageously in water-based binder systems or for substrate pretreatment. It can also be used as a constituent of aqueous sizes or as an additive.

During storage a smooth separation (liquid phase) can occur. Before using Dynasylan® HYDROSIL 1153 homogenization is recommended (stirring).

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