Product Information

Dynasylan® HYDROSIL 2999

aqueous oligomeric quaternary aminoalkyl- and ammoniumalkyl-functional silane hydrolysate with antistatic properties

PRODUCT DESCRIPTION

Dynasylan® HYDROSIL 2999 is an aqueous oligomeric quaternary amino- and ammoniumalkyl-functional silane hydrolysate, which brings anti-static effects and enhanced conductivity to inorganic surfaces. It is a colorless to slightly yellowish aqueous solution with an amine-like odour, miscible with alcohols or water.

Dynasylan® HYDROSIL 2999 can be diluted with water in all proportions (stirring for at least 1 h at RT). During dilution, the oligomeric structure changes and the number of SiOH groups increases. The hydrolysates are long-term stable.

Typical Properties

Property	Unit	Value
Color ISO 6271		≤400 mg Pt-Co/l
Density (20 °C) DIN 51757	g/cm³	1.100-1.115
Flash Point DIN EN 22719	°C	≥95
pH Value (20 °C) DIN 19268		8.0-9.5
Viscosity (20 °C) DIN 53015	mPa·s	≤100

The data represents typical values (no product specification)

TYPICAL APPLICATIONS

Dynasylan® HYDROSIL 2999 is a multifunctional organic compound in which the silanol groups can be bonded to an inorganic substrate and the organophilic amino group can interact with a suitable polymer or resin.

Examples of suitable inorganic substrates are:

- glass, glass fibers, glass beads and glass wool
- mineral wool
- metals
- and various fillers like quartz, wollastonite or ATH.

Examples of suitable polymers or resins are:

- Thermosets like epoxy, phenolic, furanic and melaminic resins
- Thermoplastics like PA, PBT, EVA, PPS, MAPE, MAPP, PVB, acrylates
- Elastomere like silicones

Dynasylan® HYDROSIL 2999 finds application in many industries. Advantages arise in water-based systems.

Examples are:

- as a glass and metal primer
- as a size constituent of glass fiber/glass fabric composites or mineral wool insulating materials
- as an additive to foundry resins and abrasives
- as a pretreatment or an additive to mineral-filled thermoplastic compounds
- as an additive for adhesives and sealants to improve adhesion to the substrate
- as an additive and/or primer for paints and varnishes to improve adhesion to the substrate

Product Composition

Product Composition	Unit	Value
Nitrogen (N_2) Content	wt%	5.1
Solids Content	wt%	46-50

The data represents typical values (no product specification)

BENEFITS & ADVANTAGES

The particular advantages of Dynasylan® HYDROSIL 2999 compared with the corresponding monomeric amino- or alkyl-functional alkoxysilanes are:

- Alcohol content of ≤ 1% guarantees nonflammability, safe handling and minimal volatile organic constituents emisssion.
- No hydrolysis chemistry is needed as Dynasylan® HYDROSIL 2999 is a ready-to-use aqueous silane hydrolysate.
- Easily diluted with water to adjust to target concentration

Important product effects that can be achieved by using Dynasylan® HYDROSIL 2999 are:

- Improved antistatic properties after glass fiber treatment with Dynasylan® HYDROSIL 2999.
- Improved mechanical properties, e.g. flexural strength, tensile strength, impact strength, modulus of elasticity.
- Improved adhesion by excellent surface wetting of inorganic substrates and optimal reaction with organic polymers.

Dynasylan® HYDROSIL 2999 helps as well to improve processing properties such as:

- Nonflammability making almost no particular equipment safety precautions necessary.
- Highly effective dispersing additive for inorganic particles in water. Better filler dispersion leading to increased filler content during compounding.

HANDLING & PROCESSING

Before considering the use of Dynasylan® products please read their actual 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 on our website https://silanes.evonik.com/en or upon request from your local representative, customer service or from Evonik Operations GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

Please refer to your Evonik representative to discuss exact handling (e.g. dilution, wetting, curing temperature) of Dynasylan® HYDROSIL 2999 with a technical expert to achieve the best possible results.

PACKAGING

Dynasylan® HYDROSIL 2999 is supplied in 25 kg PE cans, 200 kg drums and 1.000 kg IBC.

STORAGE

It is recommended to store Dynasylan® HYDROSIL 2999 above 4°C.

Dynasylan® HYDROSIL 2999 has a flash point >= 95°C and can be stored and transported accordingly with different local requirements, compared to flammable liquids (Category 2, 3 and 4), as the most established monomeric alkoxysilane materials are.

SHELF LIFE

Dynasylan® HYDROSIL 2999 has a shelf life of minimum 12 months from delivery in an originally sealed cans, drum or IBC.

Registration Listings	
Registry	**Status**
EU (EINECS/ELINCS)	Yes

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