Product information

# Dynasylan® 1124

## Bis(trimethoxysilylpropyl)amine

### Technical data

| Properties and test methods | Value | Unit | Method |
|---|---|---|---|
| Density (20 °C) | approx. 1.04 | g/cm³ | DIN 51757 |
| Flash point | > 140 | °C | DIN 51758 |
| Viscosity (20 °C) | approx. 6.5 | mPa·s | DIN 53015 |
| Boiling point (1013 hPa) | 285 - 288 | °C | ASTM D 1120 |
| Melting point | < -38 | °C | DIN ISO 3841 |

### Registrations

Dynasylan® 1124

| | |
|---|---|
| DSL/NDSL (Canada): | NDSL |
| PICCS (Philippines): | Yes |
| TSCA (USA): | Yes |
| IECS (P.R. China): | Yes |
| ENCS (Japan): | No |
| ECL (South Korea): | Yes |
| EINECS/ELINCS (EU): | Yes |
| AICS (Australia): | No |

**Dynasylan®** 1124 is a secondary aminofunctional silane posessing two symmetric silicon atoms.

**Dynasylan® 1124** acts as an adhesion promoter between inorganic materials (for example glass, metals and fillers) and organic polymers (thermosets, thermoplastics and elastomers) or as a surface modifier. **Dynasylan®** 1124 is a slightly yellowish liquid with an amine-like odor. It is soluble in alcohols, aliphatic or aromatic hydrocarbons.

### Safety and handling

Before considering the use of Dynasylan® products please read its Material Safety Data sheet (MSDS) thoroughly for safety and toxicological data as well as for information on proper transportation, storage and use. The Material 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 Industries AG, Product Safety Department, E-MAIL sds-im@evonik.com.

### Packaging and storage

**Dynasylan®** 1124 is supplied in a convenient small sized package (25 kg) and in 180 kg drums. In the unopened container **Dynasylan®** 1124 has a shelf life of at least 12 months.

## Properties and application

**Dynasylan®** 1124 is an important additive in many applications.

Examples are:

- metal primers
- mineral fiber insulating materials, abrasives: as additive to phenolic resin binders
- foundry resins: as additive to phenolic, furan and melamine resins
- sealants and adhesives: as primer or additive
- mineral-filled composites: for pre-treatment of fillers and pigments
- paints and coatings: as additive and primer for improving adhesion to the substrate.

The most important effects which can be achieved using **Dynasylan®** 1124 are:

- improvement in product properties, such as
- flexural strength, tensile strength, impact strength and modulus of elasticity
- moisture and corrosion resistance
- durability at high temperature and humidity
- improvement in processing properties, such as
- wet-out
- homogeneous distribution of inorganic fillers in polymer matrices
- higher filler loading
- excellent primerless adhesion
- rheological behaviour: reduction in viscosity, Newtonian behaviour

## Reactivity

**Dynasylan®** 1124 is a bifunctional organosilane possesing a reactive secondary amine where the silicon-functional methoxy-groups hydrolyze in the presence of water to form reactive silanols, which can be bonded to an inorganic substrate. The organophilic amino group can interact with a suitable polymer. Due to 6 hydrolyzable alkoxy substituents present in one molecule, **Dynasylan®** 1124 is exceptionally suitable to form highly crosslinked networks on and between substrates and in organic matrices.

The hydrolysis of **Dynasylan®** 1124 in water takes place by acidic catalysis (e.g. formic or acetic acid at a pH of 2-3). In order to achieve primer solution in organic solvents simply add 2-4 wt.-% of water per wt.-% of **Dynasylan®** 1124. Upon stirring for 5h the solutions are ready for use.

Examples of suitable polymers are epoxy resins, polyurethanes, phenolic resins, furan resins, melamine resins, PA, PBT, PC, EVA, modified PP, PVB, PVAC, PVC, acrylates and silicones.

The secondary amino group in **Dynasylan®** 1124 provides high basicity at somewhat lower reactivity compared to primary amino groups. This is of major advantage in adhesives and sealants where the silane is added to form e.g. silane capped urethane prepolymers.

Exceptional crosslinking properties make **Dynasylan®** 1124 a preferred component in the silylation of inorganic filler surfaces and in corrosion-resistant primer systems for metal pre-treatment.

## Processing

**Dynasylan®** 1124 can advantageously be employed in organic solvents or added in situ as a pure substance to the polymer. In higher concentrations (1-5 wt.-%) chemical modification can be achieved by reaction with suitable functional monomers or polymers, for example those containing epoxy groups.

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