

# Dynasylan® HMDS

## Hexamethyldisilazane

### Technical data

Properties and test methods	Value	Unit	Method
Density (20 °C)	0,77	g/cm <sup>3</sup>	DIN 51757
Refractive index n(20,D)	approx. 1.409	-	DIN 51423
Boiling point (1013 hPa)	approx. 126	°C	DIN 51751
Flash point	11	°C	DIN 51755

### Registrations

#### Dynasylan® HMDS

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

#### Dynasylan® HMDS - Hexamethyldisilazane

Dynasylan® HMDS acts as efficient silylating agent in the pharmaceutical industry, as adhesion promoter in the microelectronic industry and as hydrophobation agent, e.g. for fillers. Dynasylan® HMDS is a clear colourless liquid.

### Properties and applications

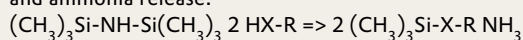
Dynasylan® HMDS is the most commonly used reagent for silylation of protic organic and inorganic materials.

The main applications are:

- Blocking and protection of hydroxylic groups in natural products
- Stabilization for further modification, formation of volatile products
- Blocking and protection of functional groups in organic intermediates
- The silylated derivatives exhibit improved chemical stability than the basic products and enable chemical reactions which otherwise would not be possible
- Derivatization of protic compounds for analytical investigations
- The silylated derivatives are volatile and can be detected by gas chromatography

## Reactivity

Dynasylan® HMDS can react with protic substances such as alcohols, phenols, carboxylic acids, amino acids, carbohydrates, thiols and amines under formation of the silylated derivatives and ammonia release.



Normally reactions are carried out by refluxing the substrate with an excess of Dynasylan® HMDS until evolution of ammonia ceases. Hexamethyldisilazane is particularly effective with alcohols and phenols. The addition of acidic catalysts such as sulfuric acid or ammonium sulfate increases the reaction rate and the degree of silylation.

A combination of Dynasylan® HMDS with trimethyl chloro silane preferably in the molar ratio 1:1 represents a very effective silylation agent for 3 mol equivalents of the substrate. The cleavage product in this case is ammonium chloride.

Silylations with Dynasylan® HMDS are usually conducted without solvent. The silylation reaction generally results in very high, often quantitative yields. Dynasylan® HMDS decomposes in presence of water or acids. Strong oxidation agents cause oxidation.

## 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](http://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](mailto:sds-hu@evonik.com).

## Packaging, storage and shelf life

Dynasylan® HMDS is supplied in 150 kg drums or in 750 kg bulk containers.

In the originally closed drums Dynasylan® HMDS has a shelf life of min. 1 year after delivery.

Deblocking is preferably carried out by means of hydrolysis, resulting in high yields. In some cases a thermal deblocking is possible

- Silylation of inorganic particularly silicatic substrates such as silica
- Hydrophobation of substrates for better dispersion and viscosity reduction and for better adhesion as filler in polymers
- Silylation of metals (iron, non iron, precious metal) and metalloids (silicon)
- Hydrophobation and adhesion promotion to polymers such as duroplastics/thermosets (e.g. photo-resists) or thermoplastics

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