

# Safety Data Sheet

according to Regulations 1907/2006/EC (REACH) and 2015/830/EU

REF: 701450.110  
Printing date: 02.06.2020

Silyl-271, 1x10 mL  
Date of issue: 05.11.2018

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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

REF 701450.110  
Product name Silyl-271, 1x10 mL

REACH Registration number(s): see SECTION 3.1/3.2 or  
A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.

1 x 10 mL SILYL 271

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

#### Relevant identified uses

Product for analytical use.

Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0  
The exposure scenario is integrated into sections 1-16.

#### Uses advised against

not described

### 1.3 Details of the supplier of the safety data sheet

#### Manufactured by:

MACHEREY-NAGEL GmbH & Co. KG  
Neumann-Neander-Str. 6-8, 52355 Dueren, GERMANY  
Tel.: +49 2421 969 0

E-mail: [sds@mn-net.com](mailto:sds@mn-net.com) ([msds@mn-net.com](mailto:msds@mn-net.com))

### 1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.  
DE: Gemeinsames Giftinformationszentrum (GGIZ) 99089 Erfurt tel. +49 361 730 730

You find our current versions of SDS (22 languages) in Internet:

<http://www.mn-net.com/SDS>

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

10 mL SILYL 271



GHS02



GHS05



GHS06



GHS07



GHS08

Signal word

DANGER

#### Hazard identification

#### Hazard classes/categories

H225	Flam. Liq. 2
H226	Flam. Liq. 3
H302	Acute Tox. 4 oral
H311	Acute Tox. 3 derm.
H314	Skin Corr. 1B
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H332	Acute Tox. 4 inh.
H360	Repr. 1B
H412	Aquatic Chronic 3

### 2.2 Label elements

According CLP directive inner packages must be only labelled with GHS symbol(s) and product identifier(s) (EU 1272/2008 Annex I - 1.5.1.2). Inner packages up to 10 mL need max. 2 symbols (Annex I - 1.5.2.4.1 / 2).

Harmful chemicals/mixtures with signal word: **WARNING** and highly flammable chemicals/mixtures must not be labelled with H and P

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phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).

## 10 mL SILYL 271



GHS02 GHS05 GHS06 GHS07 GHS08

Signal word: DANGER

H311, H314, H360

Toxic in contact with skin. Causes severe skin burns and eye damage. May damage fertility or the unborn child.

P260sh, P280sh, P303+361+353, P305+351+338, P310, P405

Do not breathe dust/vapours. Wear protective gloves/eye protection. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Store locked up.

## 2.3 Other hazards

### Possible hazards from physicochemical properties

Generally in the case of pH values are less than 2 or higher than 11.5 then it is corrosive. In the case of pH values are less than 5 or higher than 9 then it is irritant. Flammable properties. ---

### Information pertaining to particular risks to human and possible symptoms

Causes varying degrees of acid burns on the skin, to the eyes and to the mucous membranes and wounds which do not heal quickly depending on the concentration, temperature and the exposure time. Vapours especially which steam from hot liquids and mist can have a severe irritant effect upon the eyes and the respiratory organs.

Cause severe after skin contact, impairments of health or can lead to death even when only ingested in small quantities. Cause after oral intake, impairments of health when ingested in small quantities. May damage fertility or the unborn child. -

### Information pertaining to particular risks to the environment

Avoid contact of substance/mixture to environment.

PBT: not applicable

vPvB: not applicable

### Other hazards

---

## SECTION 3: Composition/information on ingredients

### 3.1 Substances or 3.2 Mixtures

#### 10 mL SILYL 271

Chemical: *N,O-bis-trimethylsilyl-acetamide (BSA)* CAS No.: 10416-59-8

Classification: H225, Flam. Liq. 2, H302, Acute Tox. 4 oral, H314, Skin Corr. 1B

Formula: C<sub>8</sub>H<sub>21</sub>NOSi<sub>2</sub>

Pseudonym: N-(trimethylsilyl)-ethanimidic acid, trimethylsilyl ester

TSCA Inventory: listed for R&D only

EC No.: 233-892-7

RTECS: AK3000000

MFCD: 00008270

Concentration: 20 - <25 %

acc. CLP (GHS): H226, Flam. Liq. 3, H314, Skin Corr. 1B

Chemical: *N-trimethylsilyl-imidazole (TMS-Imidazole)* CAS No.: 18156-74-6

Classification: H225, Flam. Liq. 2, H315, Skin Irrit. 2, H319, Eye Irrit. 2, H335, STOT SE 3, H360, Repr. 1B

Formula: C<sub>6</sub>H<sub>12</sub>N<sub>2</sub>Si

Pseudonym: 1H-Imidazole, 1-(trimethylsilyl)-

TSCA Inventory: listed

EC No.: 242-040-3

RTECS: NI8700000

MFCD: 00005280

Concentration: 10 - <15 %

acc. CLP (GHS): H225, Flam. Liq. 2, H315, Skin Irrit. 2, H319, Eye Irrit. 2, H360, Repr. 1B

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Chemical:	hexamethyldisilazane (HMDS)	CAS No.:	999-97-3
Classification:	H225, Flam. Liq. 2, H302, Acute Tox. 4 oral, H311, Acute Tox. 3 derm., H314, Skin Corr. 1B, H332, Acute Tox. 4 inh., H412, Aquatic Chronic 3		
Formula:	C <sub>6</sub> H <sub>19</sub> NSi <sub>2</sub>		
Pseudonym:	1,1,1,3,3,3-hexamethyldisilazane		
TSCA Inventory:	listed		
REACH Reg. No.:	01-2119438176-38-xxxx		
EC No.:	213-668-5		
RTECS:	JM9230000	MFCID:	00008259
Concentration:	65 - <80 %		
acc. CLP (GHS):	H225, Flam. Liq. 2, H302, Acute Tox. 4 oral, H311, Acute Tox. 3 derm., H314, Skin Corr. 1B, H332, Acute Tox. 4 inh., H412, Aquatic Chronic 3		

## 3.3 Remarks

List of H and P phrases: see section 16.1

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice. Remove contaminated clothing. Show product package, packing insert and this material safety data sheet to the doctor.

#### 4.1.1 After SKIN Contact

Remove contaminated clothing immediately. Rinse the affected skin or mucous membrane thoroughly for min. 15 minutes under running water. (If possible) use soap. Avoid neutralisation. Then apply a loose bandage.

#### 4.1.2 After EYE Contact

After contact with the eyes rinse thoroughly under running water with the eyelid wide open for min. 10 minutes with eye washing bottle, eye douche or running water (protect intact eye). Before (if possible) apply eye drops Proxymetacaine 0.5%, if the opening the eyelid convulsion is painful. Further treatment to be carried out by an eye specialist.

#### 4.1.3 After INHALATION of vapours

After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. If vomiting and if insensible place patient in recovery position and keep airways free. ---

#### 4.1.4 After ORAL Intake

After oral intake lots of water with activated charcoal supplement should be drunk after it has been ingested. Do not induce vomiting under any circumstances. Do not make any efforts to neutralise it. Contact medical advice for possible consequences. ---

### 4.2 Most important symptoms and effects, both acute and delayed

CMR Effects: May damage fertility or the unborn child. ---

### 4.3 Indication of any immediate medical attention and special treatment needed

CORROSIVE DAMAGE: After SKIN CONTACT rinse with water for a long time. Efforts to neutralise the substance can frequently make matters worse. Apply glucocorticosteroides following inflammatory reactions. After EYE CONTACT rinse immediately with plenty of water for a long time. Eyelid convulsion measures. Name the corrosive chemical. Further treatment must be carried out by an eye specialist. After INTAKE administer aluminium oxide drug suspensions. Administer a prophylaxis to counter pulmonary oedema following the INGESTION of corrosive aerosols. In the event of RESPIRATORY DISTRESS ensure that the patient inhales oxygen. ---

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.

### 5.2 Special hazards arising from the substance or mixture

WARNING: Flammable (GHS regulation). May form explosive vapour-air mixtures. DANGER: Highly flammable (GHS regulation). Forms explosive vapour-air mixtures. Formation of hazardous and caustic vapour-air mixtures possible. ---

### 5.3 Advice for firefighters

No, for listed product. Product package burns like paper or plastic. Spray any vapours released with water. Retent fire water. Use only acid-resistant safety equipment.

For great amount - if necessary - protective breathing apparatus which is independent of the ambient air (isolated equipment), and sealed protective clothing is necessary in the event of a large-scale formation of toxic substances.

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## 5.4 Additional information

Danger for environment **only in the event of a large-scale leakage** or formation of hazardous substances. ---

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe vapours. Wear suitable protective gloves (see 8.2.2). Wear eye protection, respectively face protection. Regular staff training is necessary, indicating hazards and precautions on the basis of operating instructions. Restrictions on activity must be observed.

### 6.2 Environmental precautions

not necessary, contains only small amounts of these substances

### 6.3 Methods and material for containment and cleaning up

Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals. Clean any contaminated equipment and floors with plenty of water. Collect small amounts of leaked liquid and flush with water into drains.

### 6.4 Reference to other sections

see information in section 5.4 ---

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Handling in accordance with the test instruction, that comes with the product.

### 7.2 Conditions for safe storage, including any incompatibilities

The original product package of MACHEREY-NAGEL allows a safe storage. Products containing also toxic substances should be kept locked up.

Storage class (VCI):

Water hazard class (DE): 1

#### 7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage, so that they are not immediately accessible to outside parties. Use inbreakable container for transport of glass bottles.

### 7.3 Specific end use(s)

Product for analytical use.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### 10 mL SILYL 271

Chemical: *N,O-bis-trimethylsilyl-acetamide (BSA)*

CAS No.: 10416-59-8

Chemical: *N-trimethylsilyl-imidazole (TMS-Imidazole)*

CAS No.: 18156-74-6

Chemical: *hexamethyldisilazane (HMDS)*

CAS No.: 999-97-3

DNEL: 53 mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

PNEC<sub>(fresh water)</sub>: - mg/L  
PNEC = Predicted No Effect Concentration

### 8.2 Exposure controls

Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities. The highest level of cleanliness must be maintained at the workplace.

#### 8.2.1 Respiratory protection

No additional recommendations.

#### 8.2.2 Hand protection

Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC (f.ex. from Ansell or KCL). Use for short times chemical resistant latex or nitril gloves with code EN 374-3 level 1.

#### 8.2.3 Eye protection

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Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection or face protection.

## 8.2.4 Skin protection

Recommended to avoid clothing damage, and to avoid contamination with these hazards.

## 8.2.5 Personal hygiene

Eating, drinking, smoking, taking snuff and storage of food in work areas and at outdoor workplaces is prohibited. Avoid contact with the skin, eyes and clothing. Rinse any clothing on which the substance has been spilled, and soak it in water. Wash hands thoroughly with soap and water when stopping work and before eating, and then apply protective skin cream.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### 10 mL SILYL 271

Appearance: liquid  
Flash point:

Colour: colourless  
10 °C

Odor: penetrative

### 9.2 Other information

Data for the other parameters of the mixtures are not available, because no registration and no chemical safety report is required.

#### Relevant Properties of Substance Group

Substances are very volatile and form flammable vapour-air mixtures. ---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Strong CORROSIVE, . Reacts with water (sometimes violent) and diverse organic compounds. no further data available.

### 10.2 Chemical stability

No known instability.

### 10.3 Possibility of hazardous reactions

Can react violently with organic material. No further data available.

### 10.4 Conditions to avoid

Not necessary. ---

### 10.5 Incompatible materials

Avoid contact with strong acids or alkalines.

### 10.6 Hazardous decomposition products

In the original package all parts/all reagents are safety and separated stored. Decompositions are not observed during the expiration period under recommended conditions.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Following information is valid for pure substances. Quantitative data on the toxicity of this product are not available.

#### 10 mL SILYL 271

Chemical: *N,O-bis-trimethylsilyl-acetamide (BSA)*  
TSCA Inventory: listed for R&D only  
LD50<sub>orl rat</sub>: 1580 mg/kg  
LD50<sub>ipr mus</sub>: 750 mg/kg

CAS No.: 10416-59-8

Chemical: *N-trimethylsilyl-imidazole (TMS-Imidazole)*  
TSCA Inventory: listed  
LC<sub>50</sub><sub>Lowipt mus</sub>: 750 mg/m<sup>3</sup>

CAS No.: 18156-74-6

Carcinogenic Effects: May damage fertility or the unborn child.

Chemical: *hexamethyldisilazane (HMDS)*  
TSCA Inventory: listed  
LD50<sub>orl rat</sub>: 850 mg/kg  
LC50<sub>ihl rat</sub>: 8.7<sub>4h</sub> mg/L  
LD50<sub>drm rbt</sub>: 550 mg/kg

CAS No.: 999-97-3

Acute Effects: Cause severe after skin contact, impairments of health or can lead to death even when only ingested in small

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quantities. Acute Effects: Cause after oral intake, skin contact, impairments of health when ingested in small quantities.

## SECTION 12: Ecological information

### 12.1 Toxicity

Following information is valid for pure substances.

#### 10 mL SILYL 271

Chemical: *N,O-bis-trimethylsilyl-acetamide (BSA)* CAS No.: 10416-59-8  
Avoid contact of substance/mixture to environment.  
Water hazard class (DE): 1  
Storage class (VCI): 12

Chemical: *N-trimethylsilyl-imidazole (TMS-Imidazole)* CAS No.: 18156-74-6  
Water hazard class (DE): 1  
Storage class (VCI): 3 A

Chemical: *hexamethyldisilazane (HMDS)* CAS No.: 999-97-3  
Harmful to aquatic life with long lasting effects. Avoid contact of substance/mixture to environment.  
Environmental hazards must not be labelled with P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).  
PNEC<sub>(fresh water)</sub>: - mg/L  
PNEC = Predicted No Effect Concentration  
LC50<sub>fish/96h</sub>: [EC50 24h] 949 mg/L  
EC50<sub>daphnia/48h</sub>: 80-124 mg/L  
IC50<sub>scenedesmus quadricauda/72h</sub>: [4d] 625-1053 mg/L  
Water hazard class (DE): 1 WGK No.: VwVwS  
Storage class (VCI): 3

### 12.2 Persistence and degradability

not necessary

### 12.3 Bioaccumulative potential

not necessary

### 12.4 Mobility in soil

not necessary

### 12.5 Results of PBT and vPvB assessment

no data available

### 12.6 Other adverse effects

no additional data available

## SECTION 13: Disposal considerations

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06). Close container tightly.

### 13.1 Waste treatment methods

Normally it is possible to empty small amounts (diluted!) into drains. Empty containers of corrosive reagents prior to disposal, rinse with water.

Dispose of contents/container to regulated waste treatment.

## SECTION 14: Transport information

14.1. UN number: 3316 14.2. UN proper shipping name: Chemical Kit  
14.3. Class: 9 14.4. Packing group: II  
*Road transport*  
Classification code: M11 Tunnel restriction code: E  
Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation  
*Air transport*  
PAX: 960 max. weight PAX: 10 KG  
CAO: 960 max. weight CAO: 10 KG  
*Maritime transport*  
EmS: F-A, S-P Storage category: A

Or use **Alternative declaration for transportation:**

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UN No.: (see below) UN 1993 class 3 II, class 8 II, **Excepted Quantities** ( $\leq 30$  mL/ $\Sigma \leq 500$  mL) = ADR/ IATA E2  
or

**14.1 UN number: 2924**

**14.2 UN proper shipping name: Flammable liquid, corrosive, n.o.s. (hexamethyldisilazane (HMDS) solution)**

**14.3 Class: 3** Additionally class: **8** **14.4 Packing group: II**

*Road transport*

Classification code: FC

Limited Quantity: 1 L

Excepted Quantity: E 2

Tunnel restriction code: E

*Air transport*

PAX: 352

CAO: 363

max. weight PAX: 1 L

max. weight CAO: 5 L

*Maritime transport*

EmS: F-E, S-C

Maritime pollutant (5.2.1.6):

Storage category: B

P\* (Limited Quantity (LQ) until 5 L/kg per inner package)

## 14.5 Environmental hazards

none, contains only small quantities of hazardous substances, contains only small amounts of these substances

## 14.6 Special precautions for user

not necessary

## 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

not applicable

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

German act governing protection from hazardous substances (Chemicals Act / Chemikaliengesetz- ChemG), revised on August 2013  
German order governing protection from hazardous substances (Ordinance on Hazardous Substances / Gefahrstoffverordnung - GefStoffV), revised on November 2010, according to Directive 98/24/EC  
TRGS 200, German engineering rules governing the classification and labelling of hazardous substances, preparations and products, updated October 2011  
MN Leaflet/User manual, also see [www.mn-net.com](http://www.mn-net.com)  
Look for your country-specific regulations.

### 15.2 Chemical safety assessment

not necessary for these small amounts ---

## SECTION 16: Other information

### 16.1 List of H and P phrases

#### 16.1.1 List of relevant H phrases

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H360	May damage fertility or the unborn child.
H412	Harmful to aquatic life with long lasting effects.

#### 16.1.2 List of relevant P phrases

P201	Obtain special instructions before use.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P260sh	Do not breathe dust/vapours.
P261sh	Avoid breathing dust/vapours.
P264W	Wash with water thoroughly after handling.
P273	Avoid release to the environment.
P280sh	Wear protective gloves/eye protection.

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P301+312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+352	IF ON SKIN: Wash with plenty of water.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER/doctor.
P312	Call a POISON CENTER/doctor if you feel unwell.
P330	Rinse mouth.
P405	Store locked up.

## 16.2 Training advice

Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.

## 16.3 Recommended restriction on use

Only for professional user.  
 Look about employee restrictions for young people (f. ex. 94/33/EC or DE § 22 JArbSchG)!  
 Look about employee restrictions for pregnant women and nursing women (f.ex. 92/85/EEC or for DE §§ 11-13 MuSchG 2017)!  
 An individual package of this product or test kit has a moderate hazardous potential.

## 16.4 Further information

MACHEREY-NAGEL GmbH & Co. KG provides the information contained herein in good faith being up-to-date of own realizations at revision time. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgement in determining its appropriateness for a particular purpose.  
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## 16.5 Sources of key data

Regulation 453/2010/EU REACH - REQUIREMENTS FOR THE COMPILATION OF SAFETY DATA SHEETS  
 Regulation 487/2013/EU, 4<sup>th</sup> adaptation of CLP regulation to technical and scientific progress  
 Regulation 669/2018/EU, 4<sup>th</sup> adaptation of CLP regulation to technical and scientific progress  
 Regulation 1480/2018/EU, 4<sup>th</sup> adaptation of CLP regulation to technical and scientific progress  
 TRGS 900, German engineering rules governing limits in air at work, updated 03/2019  
 SUVA .CH, Limits in air at work 2009, revised on 01.2009  
 Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work  
 TRGS 905, German engineering rules governing carcinogens and mutagens, updated 03/18  
 KÜHN, BIRETT Merkblätter Gefährliche Arbeitsstoffe (Data Sheets of Hazardous Substances)

### Revisions/Updates

Reason for Revision: 2016-03 Adaptation of regulation 1221/2015/EU