

Safety Data Sheet

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

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

1.1 Product identifier

REF 701953
 Product name Silylation kit

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.

- 2 x 1 mL BSTFA
- 2 x 1 mL MSHFBA
- 2 x 1 mL MSTFA
- 2 x 1 mL TSIM

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 (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

2.0 Classification of the complete product



GHS02 GHS07 GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H226	Flam. Liq. 3
H302	Acute Tox. 4 oral
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H335	STOT SE 3
H360	Repr. 1B

2.1 Classification of the substance or mixture

1 mL BSTFA

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GHS02

GHS07

Signal word

WARNING

Hazard identification

Hazard classes/categories

H226
H315
H319

Flam. Liq. 3
Skin Irrit. 2
Eye Irrit. 2

1 mL MSHFBA



GHS02

GHS07

Signal word

WARNING

Hazard identification

Hazard classes/categories

H226
H302
H315
H319

Flam. Liq. 3
Acute Tox. 4 oral
Skin Irrit. 2
Eye Irrit. 2

1 mL MSTFA



GHS02

GHS07

Signal word

WARNING

Hazard identification

Hazard classes/categories

H226
H302
H315
H319

Flam. Liq. 3
Acute Tox. 4 oral
Skin Irrit. 2
Eye Irrit. 2

1 mL TSIM



GHS02

GHS07

GHS08

Signal word

DANGER

Hazard identification

Hazard classes/categories

H225
H315
H319
H335
H360

Flam. Liq. 2
Skin Irrit. 2
Eye Irrit. 2
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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 phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2).

1 mL BSTFA



GHS02 GHS07

Signal word: WARNING

1 mL MSHFBA



GHS02 GHS07

Signal word: WARNING

1 mL MSTFA



GHS02 GHS07

Signal word: WARNING

1 mL TSIM



GHS02 GHS07 GHS08

Signal word: DANGER

H360
May damage fertility or the unborn child.

P280sh, P308+313, P405
Wear protective gloves/eye protection. IF exposed or concerned: Get medical advice/attention. Store locked up.

2.3 Other hazards

Possible hazards from physicochemical properties

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

Cause after oral intake, inhalation of vapours/dust, impairments of health when ingested in small quantities. May damage fertility or the unborn child. -

Information pertaining to particular risks to the environment

PBT: not applicable

vPvB: not applicable

Other hazards

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SECTION 3: Composition/information on ingredients

3.1 Substances or 3.2 Mixtures

1 mL BSTFA

Chemical: *N,O-bis-trimethylsilyl-trifluoroacetamide (BSTFA)* CAS No.: 25561-30-2
 Classification: H226, Flam. Liq. 3, H315, Skin Irrit. 2, H319, Eye Irrit. 2
 Formula: C₈H₁₈F₃NOSi₂
 TSCA Inventory: not listed
 EC No.: 247-103-9 MFCD: 00008269
 Concentration: 95 - <100 %
 acc. CLP (GHS): H226, Flam. Liq. 3, H315, Skin Irrit. 2, H319, Eye Irrit. 2

1 mL MSHFBA

Chemical: *N-methyl-N-trimethylsilyl-heptafluorobutyramide (MSHFBA)* CAS No.: 53296-64-3
 Classification: H226, Flam. Liq. 3, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2
 Formula: C₈H₁₂F₇NOSi
 TSCA Inventory: not listed MFCD: 00077822
 Concentration: 95 - <100 %
 acc. CLP (GHS): H226, Flam. Liq. 3, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2

1 mL MSTFA

Chemical: *N-methyl-N-trimethylsilyl-trifluoroacetamide (MSTFA)* CAS No.: 24589-78-4
 Classification: H226, Flam. Liq. 3, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2
 Formula: C₈H₁₂F₃NOSi
 TSCA Inventory: listed for R&D
 EC No.: 246-331-6
 RTECS: AC9800000 MFCD: 00000411
 KE No.: not listed
 Concentration: 95 - <100 %
 acc. CLP (GHS): H226, Flam. Liq. 3, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2

1 mL TSIM

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: C₆H₁₂N₂Si
 Pseudonym: 1H-Imidazole, 1-(trimethylsilyl)-
 TSCA Inventory: listed
 EC No.: 242-040-3
 RTECS: NI8700000 MFCD: 00005280
 Concentration: 95 - <100 %
 acc. CLP (GHS): H225, Flam. Liq. 2, H315, Skin Irrit. 2, H319, Eye Irrit. 2, H335, STOT SE 3, H360, Repr. 1B

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.

4.1.1 After SKIN Contact

Remove contaminated clothing. Rinse the affected skin or mucous membrane thoroughly under running water. (If possible) use soap.

4.1.2 After EYE Contact

After contact with the eyes rinse thoroughly under running water with the eyelid wide open with eye washing bottle, eye douche or running water (protect intact eye).

4.1.3 After INHALATION of vapours

After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. ---

4.1.4 After ORAL Intake

After oral intake lots of water should be drunk after it has been ingested. ---

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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

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.

5.4 Additional information

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe vapours. Regular staff training is necessary.

6.2 Environmental precautions

not necessary

6.3 Methods and material for containment and cleaning up

Bind any escaping liquid with inert absorbent.
Collect small amounts of leaked liquid and flush with water into drains.

6.4 Reference to other sections

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): 2

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.

7.3 Specific end use(s)

Product for analytical use.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1 mL BSTFA

Chemical: *N,O-bis-trimethylsilyl-trifluoroacetamide (BSTFA)*

CAS No.: 25561-30-2

1 mL MSHFBA

Chemical: *N-methyl-N-trimethylsilyl-heptafluorobutyramide (MSHFBA)*

CAS No.: 53296-64-3

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1 mL MSTFA

Chemical: *N-methyl-N-trimethylsilyl-trifluoroacetamide (MSTFA)*

CAS No.: 24589-78-4

NIOSH: not listed

[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: not listed

1 mL TSIM

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

CAS No.: 18156-74-6

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

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

8.2.4 Skin protection

Recommended 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

1 mL BSTFA

Appearance: liquid	Colour: slightly yellow	Odor: penetrative
Melting point:	-10 °C	
Boiling point:	40 _{12 mm Hg} °C	
Flash point:	24 °C	
Vapour density _(air=1) :	>1	
Specific gravity:	0,97 g/cm ³	

1 mL MSHFBA

Appearance: liquid	Colour: colourless	Odor: penetrative
Boiling point:	148 °C	
Flash point:	28 °C	
Specific gravity:	1,25 g/cm ³	

1 mL MSTFA

Appearance: liquid	Colour: colourless	Odor: penetrative
Melting point:	25 °C	
Boiling point:	131 °C	
Flash point:	26 °C	
Vapour density _(air=1) :	6,87	
Specific gravity:	1,079 g/cm ³	

1 mL TSIM

Appearance: liquid	Colour: colourless	Odor: penetrative
Melting point:	-42 °C	
Boiling point:	93-94 _{14 mm Hg} ; instable 212 °C	
Flash point:	61 °C	
Specific gravity:	0,96 g/cm ³	
Solubility in water:	instable, combust.	
Flashing temperature:	540 °C	
Viscosity:	2.5 (25°C)	

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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

. 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

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.

1 mL BSTFA

Chemical: *N,O-bis-trimethylsilyl-trifluoroacetamide (BSTFA)* CAS No.: 25561-30-2
TSCA Inventory: not listed

1 mL MSHFBA

Chemical: *N-methyl-N-trimethylsilyl-heptafluorobutyramide (MSHFBA)* CAS No.: 53296-64-3
TSCA Inventory: not listed
Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.

1 mL MSTFA

Chemical: *N-methyl-N-trimethylsilyl-trifluoroacetamide (MSTFA)* CAS No.: 24589-78-4
TSCA Inventory: listed for R&D California Proposition 65 List: not listed
Australia NICNAS: not listed Canada CEPA 1999: not listed
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: not listed
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: not listed
LC50_{ipr mus}: 1000 mg/m³
Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.

1 mL TSIM

Chemical: *N-trimethylsilyl-imidazole (TMS-Imidazole)* CAS No.: 18156-74-6
TSCA Inventory: listed
LC_{Low}_{ipt mus}: 750 mg/m³
Acute Effects: Cause after inhalation of vapours/dust, impairments of health when ingested in small quantities.
Carcinogenic Effects: May damage fertility or the unborn child.

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SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

1 mL BSTFA

Chemical: *N,O-bis-trimethylsilyl-trifluoroacetamide (BSTFA)* CAS No.: 25561-30-2
 Water hazard class (DE): 2
 Storage class (VCI): 12

1 mL MSHFBA

Chemical: *N-methyl-N-trimethylsilyl-heptafluorobutyramide (MSHFBA)* CAS No.: 53296-64-3
 Water hazard class (DE): 1
 Storage class (VCI): 12

1 mL MSTFA

Chemical: *N-methyl-N-trimethylsilyl-trifluoroacetamide (MSTFA)* CAS No.: 24589-78-4
 Water hazard class (DE): 1
 Storage class (VCI): 10

1 mL TSIM

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

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.
 Dispose of contents/container to regulated waste treatment.

SECTION 14: Transport information

14.1 - 14.4: No dangerous goods according the transport regulations because

for amounts until 5 pc. à 20x 1 mL per fibre box
De Minimis (excepted quantities: $\leq 1 \text{ mL} / \sum \leq 100 \text{ mL}$) = ADR 3.5.1.4
De Minimis (excepted quantities: $\leq 1 \text{ mL} / \sum \leq 100 \text{ mL}$) = IATA DRG 2.6.10

14.5 Environmental hazards

none, contains only small quantities of hazardous 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

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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
 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.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360	May damage fertility or the unborn child.

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.
P261sh	Avoid breathing dust/vapours.
P264W	Wash with water thoroughly after handling.
P280sh	Wear protective gloves/eye protection.
P301+312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P308+313	IF exposed or concerned: Get medical advice/attention.
P330	Rinse mouth.
P403+233	Store in a well-ventilated place. Keep container tightly closed.
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.
 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, 4th adaptation of CLP regulation to technical and scientific progress
 Regulation 669/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
 Regulation 1480/2018/EU, 4th 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

www.mn-net.com



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