

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 701951
 Product name Alkylation 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.

3 x 1 mL DMF-DMA
 3 x 1 mL TMSH, 0,2 M

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



Signal word DANGER

Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H301	Acute Tox. 3 oral
H302	Acute Tox. 4 oral
H311	Acute Tox. 3 derm.
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H331	Acute Tox. 3 inh.
H335	STOT SE 3
H370	STOT SE 1

2.1 Classification of the substance or mixture

1 mL DMF-DMA

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GHS02 GHS07

Signal word DANGER

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

1 mL TMSH, 0,2 M



GHS02 GHS06 GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H301	Acute Tox. 3 oral
H311	Acute Tox. 3 derm.
H331	Acute Tox. 3 inh.
H370	STOT SE 1

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 DMF-DMA



GHS02 GHS07

Signal word: DANGER

1 mL TMSH, 0,2 M



GHS02 GHS06 GHS08

Signal word: DANGER

H301, H311, H331, H370
Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled. Causes damage to organs.

P260sh, P280sh, P301+310, P302+352, P405
Do not breathe dust/vapours. Wear protective gloves/eye protection. IF SWALLOWED: Immediately call a POISON CENTER/ doctor. IF ON SKIN: Wash with plenty of water. Store locked up.

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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 severe after oral intake, inhalation of vapours, skin contact, impairments of health or can lead to death even when only ingested in small quantities. Cause after oral intake, inhalation of vapours/dust, impairments of health when ingested in small quantities. Causes damage to organs. -

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

1 mL DMF-DMA

Chemical:	<i>N,N</i> -dimethylformamide dimethylacetal (DMF-DMA)	CAS No.:	4637-24-5
Classification:	H225, Flam. Liq. 2, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2, H335, STOT SE 3		
Formula:	C ₅ H ₁₃ NO ₂		
Pseudonym:	1,1-dimethoxy-N,N-dimethylmethanamine, 1,1-dimethoxytrimethylamine		
TSCA Inventory:	listed		
REACH Reg. No.:	01-2119900442-52-xxxx		
EC No.:	225-063-3	MFCID:	00008482
Concentration:	95 - <100 %		
acc. CLP (GHS):	H225, Flam. Liq. 2, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2, H335, STOT SE 3		

1 mL TMSH, 0,2 M

Chemical:	<i>trimethylsulfonium hydroxide (TMSH)</i>	CAS No.:	17287-03-5
Classification:	H314, Skin Corr. 1B		
Formula:	C ₃ H ₁₀ OS		
TSCA Inventory:	not listed	MFCID:	00216756
KE No.:	not listed		
Concentration:	2 - <4 %		
acc. CLP (GHS):	The criteria for classification are not fulfilled.		

Chemical:	<i>methanol</i>	CAS No.:	67-56-1
Classification:	H225, Flam. Liq. 2, H301, Acute Tox. 3 oral, H311, Acute Tox. 3 derm., H331, Acute Tox. 3 inh., H370, STOT SE 1		
Formula:	CH ₄ O, CH ₃ OH		
TSCA Inventory:	listed		
REACH Reg. No.:	01-2119433307-44-xxxx		
EC No.:	200-659-6	Indice No.:	603-001-00-X
RTECS:	PC1400000	MFCID:	00004595
KE No.:	KE-23193, Toxic 97-1-80		
Concentration:	95 - <100 %		
acc. CLP (GHS):	H225, Flam. Liq. 2, H301, Acute Tox. 3 oral, H311, Acute Tox. 3 derm., H331, Acute Tox. 3 inh., H370, STOT SE 1		

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. Take to a doctor, in a raised position if there are breathing difficulties.

4.1.1 After SKIN Contact

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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 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. If vomiting and if insensible place patient in recovery position and keep airways free. Administer a Dexamethasone spray as soon as possible. Ensure quiet, warmth, and provide resuscitation if necessary. In the event of respiratory distress ensure that the patient inhales oxygen. Secure the breathing, heart and circulatory function. ---

4.1.4 After ORAL Intake

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

4.2 Most important symptoms and effects, both acute and delayed

Chronic Effects: Causes damage to organs. ---

4.3 Indication of any immediate medical attention and special treatment needed

After SKIN CONTACT rinse with water for a long time. Apply glucocorticosteroides following inflammatory reactions. In the event of RESPIRATORY DISTRESS ensure that the patient inhales oxygen. TOXIFICATION: Treat symptomatically. Secure the breathing, heart and circulatory function. Remove the substance quickly from the body. Mechanically induce vomiting or ensure the patient eats medicinal charcoal compressed tablets or drinks aluminium oxide drug suspensions. In order to ensure rapid passage through the colon (administer 2 tablespoons of dissolved Glauber's salt). Alleviation of pain, if necessary sedation. Shock treatment. Administer a prophylaxis to counter pulmonary oedema.

Inform patient respectively further measures and the possibility of long-term damages. ---

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

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.

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. 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

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 ---

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in accordance with the test instruction, that comes with the product. Use only in well-ventilated working areas.

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): 3
Water hazard class (DE): 1

7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage, and store in a well-ventilated place at max. 25 °C, away or preferably separate from substances with which a hazardous reaction could take place, 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

1 mL DMF-DMA

Chemical: *N,N*-dimethylformamide dimethylacetal (DMF-DMA) CAS No.: 4637-24-5

1 mL TMSH, 0,2 M

Chemical: *trimethylsulfonium hydroxide* (TMSH) CAS No.: 17287-03-5

Chemical: *methanol* CAS No.: 67-56-1

DNEL: [derm] 40 mg/kg bw/day; [inh] 260 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC(fresh water): 20.8 mg/L
PNEC = Predicted No Effect Concentration

EU value: [TWA] 200 ppm / 260 mg/m³

TRGS 900 (DE): 200 ppm / 270 mg/m³
E/e respirable

Short-term exposure factor: 4 (II), H, Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 200 ppm/ 260 mg/m³

SUVA(CH) BAT value: [U/c,b] 30 mg/L

TRGS 903 (DE): U/c,b 30 mg/L
B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: [TWA, skin] 200 ppm / 260 mg/m³

NIOSH STEL: 250 ppm / 325 mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: [TWA] 200 ppm / 260 mg/m³

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

Use for open access of these substances for example a protection filter, class A/AX. 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.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

1 mL DMF-DMA

Appearance: liquid	Colour: colourless	Odor: penetrative
Melting point: 7 °C		
Boiling point: 106-107 °C		
Flash point: 5-6 °C		
Explosion limits: 1,3-17,7 Vol%		
Specific gravity: 0,90 g/cm ³		
Flashing temperature: 155 °C		

1 mL TMSH, 0,2 M

Appearance: liquid	Colour: colourless	Odor: alcoholic
Melting point: -98 °C		
Boiling point: 64,7 °C		
Flash point: 11 °C		
Evaporation rate _(ether=1) : 6,3		
Explosion limits: 5,5-44 Vol%		
Vapour pressure (20°C): 128 hPa		
Vapour density _(air=1) : 1,11		
Specific gravity: 0,79 g/cm ³		
Solubility in water: 0-100 %		
Flashing temperature: 455 °C		
Volatiles by volume: 168 mg/m ³		

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 DMF-DMA

Chemical:	<i>N,N</i> -dimethylformamide dimethylacetal (DMF-DMA)	CAS No.: 4637-24-5
TSCA Inventory:	listed	
LD50 _{oral rat} :	>5000 mg/kg	
LC50 _{inhal rat} :	12.16 mg/m ³	
Acute Effects:	Cause after oral intake, inhalation of vapours/dust, impairments of health when ingested in small quantities.	

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1 mL TMSH, 0,2 M

Chemical: *trimethylsulfonium hydroxide (TMSH)*
 TSCA Inventory: not listed
 Korea Exist.Chem.Inventory: not listed

CAS No.: 17287-03-5

Chemical: *methanol*

CAS No.: 67-56-1

TSCA Inventory: listed
 ACGIH: 200 ppm / 160 mg/m³
 Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact
 Target Organs: Eyes, skin, respiratory system, central nervous system, gastrointestinal tract
 Symptoms: irritation eyes, skin, upper respiratory system; headache, drowsiness, dizziness, nausea, vomiting;
 visual disturbance, optic nerve damage (blindness)
 Australia NICNAS: Canada CEPA 1999: DSL yes
 Japan CSCL/PRTR: PAC yes, Japan PDSCL: Deleterious Substance
 Japan ISHL: listed ≥0,3%/≥0,1%, Article 57-2 (SDS required)
 South Korea TCCA: Accident Precaution Chemical yes
 Korea Exist.Chem.Inventory: KE-23193, Toxic 97-1-80
 LD50_{orl rat}: 5628 mg/kg
 LC_{LoWihl rat}: [4h] 64000 mg/m³
 LC_{LoWorl hmn}: 143 mg/kg
 LC50_{ihl rat}: [4h] >80 mg/L
 LD50_{drm rbt}: 15800 mg/kg
 LD50_{orl mus}: 7300 mg/kg
 Acute Effects: Cause severe after oral intake, inhalation of vapours, skin contact, impairments of health or can lead to death even when only ingested in small quantities.
 Chronic Effects: Causes damage to organs.
 TRGS 905 (DE): R_F C

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

1 mL DMF-DMA

Chemical: *N,N-dimethylformamide dimethylacetal (DMF-DMA)*
 Water hazard class (DE): 1
 Storage class (VCI): 3

CAS No.: 4637-24-5

1 mL TMSH, 0,2 M

Chemical: *trimethylsulfonium hydroxide (TMSH)*
 Storage class (VCI): 3

CAS No.: 17287-03-5

Chemical: *methanol*

CAS No.: 67-56-1

Avoid contact of substance/mixture to environment.

PNEC_(fresh water): 20.8 mg/L
 PNEC = Predicted No Effect Concentration

LC50_{daphnia magna/48h}: [24h] 23.5 g/L

LC50_{pimephales promelas/96h}: 29.4 g/L

LC50_{fish/96h}: 15.4 g/L

EC50_{daphnia/48h}: >10 g/L

IC50_{scenedesmus quadricauda/72h}: [IC5 8d] 8000 mg/L

EC10_{pseudomonas putita/16h}: [EC5] 6.6 g/L

Water hazard class (DE): 1 WGK No.: 0145

Dispersion coefficient_(octanol-water): -0.77

Storage class (VCI): 3

12.2 Persistence and degradability

not necessary

12.3 Bioaccumulative potential

not necessary

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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

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.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H370	Causes damage to organs.

16.1.2 List of relevant P phrases

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
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P233	Keep container tightly closed.
P260sh	Do not breathe dust/vapours.
P261sh	Avoid breathing dust/vapours.
P264W	Wash with water thoroughly after handling.
P280sh	Wear protective gloves/eye protection.
P301+310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P301+312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+352	IF ON SKIN: Wash with plenty of water.
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P311	Call a POISON CENTER/doctor.
P312	Call a POISON CENTER/doctor if you feel unwell.
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.
 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, 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

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

