



# N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

Safety Data Sheet SIT8422.0

Date of issue: 20/01/2015 Version: 1.0

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

### 1.1. Product identifier

Product form	: Mixture
Physical state	: Liquid
Product name	: N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide
Product code	: SIT8422.0
Formula	: C <sub>26</sub> H <sub>58</sub> BrNO <sub>3</sub> Si
Synonyms	: N,N,N-TRIBUTYL-3-(TRIMETHOXYSILYL)-1-UDECANAMMINIUM BROMIDE
Chemical family	: ORGANOSILANE

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

#### 1.2.1. Relevant identified uses

Use of the substance/mixture : Chemical intermediate

#### 1.2.2. Uses advised against

No additional information available

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

#### GELEST, INC.

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Morrisville, PA 19067

#### USA

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#### GELEST INC.

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[info@gelestde.com](mailto:info@gelestde.com) - [www.gelestde.com](http://www.gelestde.com)

### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids, Category 3	H226
Acute toxicity (dermal), Category 4	H312
Acute toxicity (inhalation:vapour) Category 4	H332
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Reproductive toxicity, Category 1B	H360
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335

Full text of H statements : see section 16

#### Adverse physicochemical, human health and environmental effects

No additional information available

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### 2.2. Label elements

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazardous ingredients :

N,N-Dimethylformamide; N-Trimethoxysilylundecyl-N,N,N-tri-n-butylammonium bromide

Hazard statements (CLP) :

H226 - Flammable liquid and vapour.  
H312+H332 - Harmful in contact with skin or if inhaled  
H315 - Causes skin irritation.  
H319 - Causes serious eye irritation.  
H335 - May cause respiratory irritation.  
H360 - May damage fertility or the unborn child.

Precautionary statements (CLP) :

P202 - Do not handle until all safety precautions have been read and understood.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P240 - Ground/bond container and receiving equipment.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P308+P313 - IF exposed or concerned: Get medical advice/attention.

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
N,N-Dimethylformamide substance listed as REACH Candidate	(CAS-No.) 68-12-2 (EC-No.) 200-679-5 (EC Index-No.) 616-001-00-X	72 - 78	Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319 Repr. 1B, H360D
N-Trimethoxysilylundecyl-N,N,N-tri-n-butylammonium bromide	(CAS-No.) Not found	22 - 28	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
11-Bromoundecyltrimethoxysilane	(CAS-No.) 17947-99-8	< 5	Skin Irrit. 2, H315 Eye Irrit. 2, H319

Full text of H-statements: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general :

Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation :

Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact :

Wash with plenty of water/.... Get medical advice/attention.

First-aid measures after eye contact :

Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion :

Never give anything by mouth to an unconscious person. Get medical advice/attention.

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

Symptoms/effects after inhalation :

May cause respiratory irritation. Overexposure may cause: Nausea. Headache. Cough.

Symptoms/effects after skin contact :

Causes skin irritation.

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Symptoms/effects after eye contact : Causes serious eye damage.  
Symptoms/effects after ingestion : May be harmful if swallowed.

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

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.

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

Fire hazard : Flammable liquid and vapour. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

Explosion hazard : May form flammable/explosive vapour-air mixture.

### 5.3. Advice for firefighters

Firefighting instructions : Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

## SECTION 6: Accidental release measures

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

General measures : Eliminate every possible source of ignition. Use special care to avoid static electric charges.

#### 6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

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

Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.

Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapour and mist. Provide good ventilation in process area to prevent formation of vapour. Use only in well ventilated areas. Use only non-sparking tools. Take precautionary measures against static discharge.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace.

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

Technical measures : Ground/bond container and receiving equipment. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.

Storage conditions : Keep container tightly closed. Store in a dark area.

Incompatible materials : Acids. alcohols. Moisture. Oxidizing agent. Peroxides. Water :

Storage area : Store in a well-ventilated place. Store away from heat.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

N,N-Dimethylformamide (68-12-2)		
EU	IOELV TWA (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
EU	IOELV TWA (ppm)	5 ppm
EU	IOELV STEL (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
EU	IOELV STEL (ppm)	10 ppm

# N-TRIMETHOXY-SILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

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N,N-Dimethylformamide (68-12-2)		
Austria	MAK (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Austria	MAK (ppm)	5 ppm
Austria	MAK Short time value (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Austria	MAK Short time value (ppm)	10 ppm
Belgium	Limit value (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Belgium	Limit value (ppm)	5 ppm
Belgium	Short time value (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Belgium	Short time value (ppm)	10 ppm
Bulgaria	OEL TWA (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Bulgaria	OEL TWA (ppm)	5 ppm
Bulgaria	OEL STEL (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Bulgaria	OEL STEL (ppm)	10 ppm
Cyprus	OEL TWA (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Cyprus	OEL TWA (ppm)	5 ppm
Cyprus	OEL STEL (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Cyprus	OEL STEL (ppm)	10 ppm
France	VLE (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup> (restrictive limit)
France	VLE (ppm)	10 ppm (restrictive limit)
France	VME (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (restrictive limit)
France	VME (ppm)	5 ppm (restrictive limit)
Germany	TRGS 900 Occupational exposure limit value (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed)
Germany	TRGS 900 Occupational exposure limit value (ppm)	5 ppm (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed)
Germany	TRGS 903 Biological limit value	35 mg/l (Medium: urine - Time: end of shift - Parameter: N,N-Methylformamide plus N-Hydroxymethyl-N-methylformamide)
Gibraltar	Eight hours mg/m <sup>3</sup>	15 mg/m <sup>3</sup>
Gibraltar	Eight hours ppm	5 ppm
Gibraltar	Short-term mg/m <sup>3</sup>	30 mg/m <sup>3</sup>
Gibraltar	Short-term ppm	10 ppm
Greece	OEL TWA (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Greece	OEL TWA (ppm)	5 ppm
Greece	OEL STEL (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Greece	OEL STEL (ppm)	10 ppm
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	10 ppm
Italy	OEL TWA (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Italy	OEL TWA (ppm)	5 ppm
Italy	OEL STEL (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Italy	OEL STEL (ppm)	10 ppm
Latvia	OEL TWA (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Latvia	OEL TWA (ppm)	5 ppm
USA IDLH	US IDLH (ppm)	500 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (ppm)	10 ppm
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (ppm)	10 ppm
Spain	VLA-ED (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (indicative limit value)
Spain	VLA-ED (ppm)	5 ppm (indicative limit value)
Spain	VLA-EC (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Spain	VLA-EC (ppm)	10 ppm
Switzerland	KZGW (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Switzerland	KZGW (ppm)	10 ppm
Switzerland	MAK (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>

# N-TRIMETHOXY-SILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

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N,N-Dimethylformamide (68-12-2)		
Switzerland	MAK (ppm)	5 ppm
Netherlands	Grenswaarde TGG 8H (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Netherlands	Grenswaarde TGG 15MIN (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
United Kingdom	WEL TWA (ppm)	5 ppm
United Kingdom	WEL STEL (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
United Kingdom	WEL STEL (ppm)	10 ppm
Czech Republic	Expoziční limity (PEL) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Denmark	Grænseværdie (langvarig) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Denmark	Grænseværdie (langvarig) (ppm)	5 ppm
Finland	HTP-arvo (8h) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Finland	HTP-arvo (8h) (ppm)	5 ppm
Finland	HTP-arvo (15 min)	30 mg/m <sup>3</sup>
Finland	HTP-arvo (15 min) (ppm)	10 ppm
Hungary	AK-érték	15 mg/m <sup>3</sup>
Hungary	CK-érték	30 mg/m <sup>3</sup>
Ireland	OEL (8 hours ref) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Ireland	OEL (8 hours ref) (ppm)	5 ppm
Ireland	OEL (15 min ref) (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Ireland	OEL (15 min ref) (ppm)	10 ppm
Lithuania	IPRV (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Lithuania	IPRV (ppm)	5 ppm
Lithuania	TPRV (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Lithuania	TPRV (ppm)	10 ppm
Malta	OEL TWA (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Malta	OEL TWA (ppm)	5 ppm
Malta	OEL STEL (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Malta	OEL STEL (ppm)	10 ppm
Norway	Grenseverdier (AN) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Norway	Grenseverdier (AN) (ppm)	5 ppm
Norway	Grenseverdier (Korttidsverdi) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (listed in the List of Administrative Norms)
Norway	Grenseverdier (Korttidsverdi) (ppm)	5 ppm (listed in the List of Administrative Norms)
Poland	NDS (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Poland	NDSch (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Romania	OEL TWA (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Romania	OEL TWA (ppm)	5 ppm
Romania	OEL STEL (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Romania	OEL STEL (ppm)	10 ppm
Slovakia	NPHV (priemerná) (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Slovakia	NPHV (priemerná) (ppm)	10 ppm
Slovakia	NPHV (Hraničná) (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Sweden	nivågränsvärde (NVG) (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Sweden	nivågränsvärde (NVG) (ppm)	10 ppm
Sweden	kortidsvärde (KTV) (mg/m <sup>3</sup> )	45 mg/m <sup>3</sup>
Sweden	kortidsvärde (KTV) (ppm)	15 ppm
Canada (Quebec)	VEMP (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Canada (Quebec)	VEMP (ppm)	10 ppm
Australia	TWA (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup>
Australia	TWA (ppm)	10 ppm
Portugal	OEL TWA (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup> (indicative limit value)

# N-TRIMETHOXYSYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

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N,N-Dimethylformamide (68-12-2)		
Portugal	OEL TWA (ppm)	10 ppm (indicative limit value)
Portugal	OEL STEL (mg/m <sup>3</sup> )	30 mg/m <sup>3</sup> (indicative limit value)
Portugal	OEL STEL (ppm)	10 ppm (indicative limit value)
Portugal	OEL chemical category (PT)	A4 - Not Classifiable as a Human Carcinogen, skin - potential for cutaneous exposure indicative limit value

### 8.2. Exposure controls

#### Appropriate engineering controls:

Provide local exhaust or general room ventilation.

#### Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

#### Hand protection:

Neoprene or nitrile rubber gloves

#### Eye protection:

Chemical goggles. Contact lenses should not be worn

#### Skin and body protection:

Wear suitable protective clothing

#### Respiratory protection:

NIOSH-certified combination organic vapor - amine gas (brown cartridge) respirator.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 540.74 g/mol
Colour	: Straw. Amber.
Odour	: Amine. Ammonia-like.
Odour threshold	: No data available
Refractive index	: 1.4428
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: < 0 °C
Freezing point	: No data available
Boiling point	: 153 °C (initial, DMF)
Flash point	: 58 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable liquid and vapour.
Vapour pressure	: 3.7 mm Hg (DMF)
Relative vapour density at 20 °C	: > 1
Relative density	: ~ 1
% Volatiles	: 75 %
Solubility	: Reacts with water. Dissolves.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 2.2 - 15.2 vol % (lower; upper)

# N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

## Safety Data Sheet

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable in sealed containers.

### 10.3. Possibility of hazardous reactions

Reacts with water and moisture in air liberating dimethylformamide.

### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

### 10.5. Incompatible materials

Acids. alcohols. Moisture. Oxidizing agent. Peroxides. Water :

### 10.6. Hazardous decomposition products

Organic acid vapors.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Harmful in contact with skin. Harmful if inhaled.

#### N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

ATE CLP (dermal)	1100 mg/kg bodyweight
ATE CLP (vapours)	11 mg/l/4h

#### N,N-Dimethylformamide (68-12-2)

LD50 oral rat	2800 mg/kg
LD50 dermal rat	1100 mg/kg
LC50 inhalation rat	1948 ppm/4h

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

#### N,N-Dimethylformamide (68-12-2)

IARC group	3 - Not classifiable
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Reproductive toxicity	: May damage fertility or the unborn child.
STOT-single exposure	: May cause respiratory irritation.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May cause respiratory irritation. Overexposure may cause: Nausea. Headache. Cough.
Symptoms/effects after skin contact	: Causes skin irritation.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: May be harmful if swallowed.

## SECTION 12: Ecological information

### 12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

#### N,N-Dimethylformamide (68-12-2)

LC50 fish 1	6300 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus)
EC50 Daphnia 1	7500 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	9800 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 Daphnia 2	8485 mg/l (Exposure time: 48 h - Species: Daphnia magna [semi-static])

### 12.2. Persistence and degradability

No additional information available

# N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

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### 12.3. Bioaccumulative potential

N,N-Dimethylformamide (68-12-2)	
BCF fish 1	0.3 - 1.2
Log Pow	-1.028

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

Component	
N,N-Dimethylformamide (68-12-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

### 12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Ecology - waste materials : Avoid release to the environment.

## SECTION 14: Transport information

### 14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

### 14.1. UN number

UN-No. (ADR)	: 2924
UN-No. (IMDG)	: 2924
UN-No. (IATA)	: 2924
UN-No. (ADN)	: 2924
UN-No. (RID)	: 2924

### 14.2. UN proper shipping name

Proper Shipping Name (ADR)	: FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name (IMDG)	: FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name (IATA)	: Flammable liquid, corrosive, n.o.s.
Proper Shipping Name (ADN)	: FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name (RID)	: FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Transport document description (ADR)	: UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide), 3 (8), III, (D/E)
Transport document description (IMDG)	: UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide), 3 (8), III
Transport document description (IATA)	: UN 2924 Flammable liquid, corrosive, n.o.s. (N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide), 3 (8), III
Transport document description (ADN)	: UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide), 3 (8), III
Transport document description (RID)	: UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide), 3 (8), III

### 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR) : 3 (8)

Danger labels (ADR) : 3, 8



#### IMDG



# N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

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Transport hazard class(es) (IMDG) : 3 (8)  
Danger labels (IMDG) : 3, 8



### IATA

Transport hazard class(es) (IATA) : 3 (8)  
Hazard labels (IATA) : 3, 8



### ADN

Transport hazard class(es) (ADN) : 3 (8)  
Danger labels (ADN) : 3, 8



### RID

Transport hazard class(es) (RID) : 3 (8)  
Danger labels (RID) : 3, 8



#### 14.4. Packing group

Packing group (ADR) : III  
Packing group (IMDG) : III  
Packing group (IATA) : III  
Packing group (ADN) : III  
Packing group (RID) : III

#### 14.5. Environmental hazards

Dangerous for the environment : No  
Marine pollutant : No  
Other information : No supplementary information available

#### 14.6. Special precautions for user

##### - Overland transport

Classification code (ADR) : FC  
Special provisions (ADR) : 274  
Limited quantities (ADR) : 5I  
Excepted quantities (ADR) : E1  
Packing instructions (ADR) : P001, IBC03, R001  
Mixed packing provisions (ADR) : MP19

# N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

## Safety Data Sheet

Portable tank and bulk container instructions (ADR)	: T7
Portable tank and bulk container special provisions (ADR)	: TP1, TP28
Tank code (ADR)	: L4BN
Vehicle for tank carriage	: FL
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Special provisions for carriage - Operation (ADR)	: S2
Hazard identification number (Kemler No.)	: 38
Orange plates	:



Tunnel restriction code (ADR) : D/E

### - Transport by sea

Special provisions (IMDG)	: 223, 274
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP1, TP28
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-C
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Causes burns to skin, eyes and mucous membranes.

### - Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y342
PCA limited quantity max net quantity (IATA)	: 1L
PCA packing instructions (IATA)	: 354
PCA max net quantity (IATA)	: 5L
CAO packing instructions (IATA)	: 365
CAO max net quantity (IATA)	: 60L
Special provisions (IATA)	: A3
ERG code (IATA)	: 3C

### - Inland waterway transport

Classification code (ADN)	: FC
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 0

### - Rail transport

Classification code (RID)	: FC
Special provisions (RID)	: 274
Limited quantities (RID)	: 5L
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, R001

# N-TRIMETHOXY-SILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

## Safety Data Sheet

Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T7
Portable tank and bulk container special provisions (RID)	: TP1, TP28
Tank codes for RID tanks (RID)	: L4BN
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Colis express (express parcels) (RID)	: CE4
Hazard identification number (RID)	: 38

### 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

#### 15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains a substance on the REACH candidate list in concentration  $\geq 0.1\%$  or with a lower specific limit: N,N-dimethylformamide (EC 200-679-5, CAS 68-12-2)

Contains no REACH Annex XIV substances

Contains no substance subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

Substance(s) are not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC.

Contains no REACH Annex XIV substances

% Volatiles : 75 %

#### 15.1.2. National regulations

##### Germany

Reference to AwSV : Water hazard class (WGK) 3, Highly hazardous to water (Classification according to AwSV, Annex 1)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

##### Netherlands

SZW-lijst van kankerverwekkende stoffen : None of the components are listed

SZW-lijst van mutagene stoffen : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : N,N-Dimethylformamide is listed

##### Denmark

Class for fire hazard : Class III-1

Store unit : 50 liter

Classification remarks : Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product  
Pregnant/breastfeeding women working with the product must not be in direct contact with the product  
The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

### 15.2. Chemical safety assessment

No additional information available

# N-TRIMETHOXYSILYLUNDECYL-N,N,N-TRI-n-BUTYLAMMONIUM BROMIDE, 25% in dimethylformamide

## Safety Data Sheet

### SECTION 16: Other information

Abbreviations and acronyms:

	Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor
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Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Repr. 1B	Reproductive toxicity, Category 1B
Repr. 1B	Reproductive toxicity, Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H226	Flammable liquid and vapour.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H360	May damage fertility or the unborn child.
H360D	May damage the unborn child.

SDS EU (REACH Annex II) - Custom

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