

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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

### 1.1 Product identifier

Trade name : Acetaldehyde (ca. 2% in N,N-Dimethylformamide) [for Detection of Primary and Secondary Amines]  
 Product code : A1640  
 EC-No. : 200-836-8

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

Use of the Substance/Mixture : Use as laboratory reagent

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

Company : TCI EUROPE N.V.  
 Address : Boereveldseweg 6 - Haven 1063, B-2070 Zwijndrecht, Belgium  
 Telephone : +32 (0)3 735 07 00  
 Telefax : +32 (0)3 735 07 01  
 E-mail address of person responsible for the SDS : sales-eu@tcichemicals.com

### 1.4 Emergency telephone number

Emergency telephone number : +44 844 892 0111

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute toxicity, Category 3	H331: Toxic if inhaled.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Germ cell mutagenicity, Category 2	H341: Suspected of causing genetic defects.
Carcinogenicity, Category 1B	H350: May cause cancer.
Reproductive toxicity, Category 1B	H360: May damage fertility or the unborn child.
Specific target organ toxicity - single exposure, Category 1, Liver	H370: Causes damage to organs.
Specific target organ toxicity - single exposure, Category 2, Respiratory system	H371: May cause damage to organs.
Specific target organ toxicity - repeated exposure, Category 1, Liver	H372: Causes damage to organs through prolonged or repeated exposure.
Specific target organ toxicity - repeated exposure, Category 2, Respiratory system	H373: May cause damage to organs through prolonged or repeated exposure.

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements :  
 H226 Flammable liquid and vapour.  
 H302 Harmful if swallowed.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H331 Toxic if inhaled.  
 H341 Suspected of causing genetic defects.  
 H350 May cause cancer.

H360 May damage fertility or the unborn child.  
 H370 Causes damage to organs (Liver).  
 H371 May cause damage to organs (Respiratory system).  
 H372 Causes damage to organs (Liver) through prolonged or repeated exposure.  
 H373 May cause damage to organs (Respiratory system) through prolonged or repeated exposure.

Precautionary statements :

**Prevention:**

P201 Obtain special instructions before use.  
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

**Response:**

P305 + P351 + P338 + P310 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.  
 P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.  
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage:**

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

**Hazardous components which must be listed on the label:**

N,N-Dimethylformamide  
 Acetaldehyde

**Additional Labelling**

Restricted to professional users.

**2.3 Other hazards**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**SECTION 3: Composition/information on ingredients**

**3.2 Mixtures**

**Components**

Chemical name	CAS RN EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
N,N-Dimethylformamide	68-12-2 200-679-5 616-001-00-X	Flam. Liq. 3; H226 Acute Tox. 3; H331 Acute Tox. 4; H312 Eye Irrit. 2; H319 Muta. 2; H341 Carc. 1B; H350 Repr. 1B; H360D STOT SE 1; H370 (Liver)	>= 90 - <= 100

		STOT SE 2; H371 (Respiratory system) STOT RE 1; H372 (Liver)	
Acetaldehyde	75-07-0 200-836-8 605-003-00-6	Flam. Liq. 1; H224 Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 3; H311 Eye Irrit. 2; H319 Skin Sens. 1; H317 Muta. 2; H341 Carc. 1B; H350 Repr. 1B; H360 STOT SE 1; H370 (Respiratory system, Central nervous system) STOT SE 3; H336 (Central nervous system) STOT SE 3; H335 (Respiratory system) STOT RE 1; H372 (Respiratory system)	>= 1 - < 10

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- If inhaled : Remove person to fresh air and keep comfortable for breathing. Get medical advice/ attention if you feel unwell.
- In case of skin contact : Take off all contaminated clothing immediately. If on skin, rinse well with water. If skin irritation or rash occurs: Get medical advice/ attention.
- In case of eye contact : Rinse with plenty of water. If easy to do, remove contact lens, if worn. If eye irritation persists: Get medical advice/ attention.
- If swallowed : Get medical advice/ attention. Rinse mouth.

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

None known.

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

None known.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Dry powder, Foam, Water spray, Carbon dioxide (CO2)

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

- Specific hazards during fire-fighting : No information available.

### 5.3 Advice for firefighters

- Special protective equipment for firefighters : Use personal protective equipment.
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Immediately evacuate

personnel to safe areas. Remove undamaged containers from fire area if it is safe to do so.

## SECTION 6: Accidental release measures

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

Personal precautions : Wear suitable protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.

### 6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.

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

Methods for cleaning up : Collect as much of the spill as possible with a suitable absorbent material.

### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Technical measures : Prevent generation of vapour or mist.  
Take precautionary measures against static discharge.  
Use explosion-proof equipment.

Local/Total ventilation : Ensure adequate ventilation.  
Handle product only in closed system or provide appropriate exhaust ventilation at machinery.  
Use a local exhaust ventilation.

Advice on safe handling : Avoid contact with skin, eyes and clothing.  
Wear personal protective equipment.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Do not subject to grinding, shock or friction.  
Wash hands and face thoroughly after handling.

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

Requirements for storage areas and containers : Keep container tightly closed. Store in a refrigerator. Keep in a well-ventilated place. Use explosion-proof equipment. Keep under inert gas. Store locked up.

Storage class (TRGS 510) : 3

### 7.3 Specific end use(s)

Specific use(s) : No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS RN	Value type (Form of exposure)	Control parameters	Basis
N,N-Dimethylformamide	68-12-2	TWA	5 ppm 15 mg/m <sup>3</sup>	2009/161/EU
Further information: Identifies the possibility of significant uptake through the skin,				

	Indicative		
	STEL	10 ppm 30 mg/m <sup>3</sup>	2009/161/EU
	Further information: Identifies the possibility of significant uptake through the skin, Indicative		
	AGW	5 ppm 15 mg/m <sup>3</sup>	DE TRGS 900
	Peak-limit: excursion factor (category): 2;(II)		
	Further information: Commission for dangerous substances, Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., European Union (The EU has established a limit value: deviations in value and peak limit are possible), Skin absorption, When there is compliance with the OEL and biological tolerance values, harm to the unborn child can not be excluded		
	TWA	5 ppm 15 mg/m <sup>3</sup>	2004/37/EC
	Further information: Skin, Carcinogens or mutagens		
	STEL	10 ppm 30 mg/m <sup>3</sup>	2004/37/EC
	Further information: Skin, Carcinogens or mutagens		
Acetaldehyde	75-07-0	AGW 50 ppm 91 mg/m <sup>3</sup>	DE TRGS 900
	Peak-limit: excursion factor (category): 1;=2=(I)		
	Further information: Commission for dangerous substances, Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child		

## 8.2 Exposure controls

### Engineering measures

Install a closed system or local exhaust.  
Also install safety shower and eye bath.

### Personal protective equipment

Eye/face protection : Safety glasses, Safety goggles, Face-shield  
Hand protection : Impervious gloves  
Skin and body protection : Impervious protective clothing

Respiratory protection : Gas mask  
Self-contained breathing apparatus

\*Use personal protective equipment(PPE) approved under appropriate government standards and follow local and national regulations.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : liquid  
Colour : colourless - yellow  
Odour : No data available  
Odour Threshold : No data available  
  
Melting point/freezing point : No data available  
Boiling point/boiling range : No data available  
Flammability : No data available  
Upper explosion limit/Upper flammability limit : No data available  
Lower explosion limit/Lower flammability limit : No data available  
Flash point : No data available  
Auto-ignition point : No data available  
Decomposition temperature : No data available  
pH : No data available  
Viscosity  
Viscosity, dynamic : No data available

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Viscosity, kinematic	:	No data available
Solubility(ies)	:	
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	No data available
Relative density	:	No data available
Relative vapour density	:	No data available
Particle characteristics	:	No data available

## 9.2 Other information

Molecular weight	:	44,05 g/mol
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under normal conditions.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : None under normal processing.

### 10.4 Conditions to avoid

Conditions to avoid : Heat, Electrical spark, Open flame, Electrostatic discharge, Exposure to air.

### 10.5 Incompatible materials

Materials to avoid : Oxidizing agents,

### 10.6 Hazardous decomposition products

Carbon monoxide, Carbon dioxide (CO<sub>2</sub>)

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## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

##### Product:

Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity : Assessment: The component/mixture is minimally toxic after single contact with skin.

##### Components:

##### **N,N-Dimethylformamide:**

Acute oral toxicity : Assessment: The component/mixture is minimally toxic after single ingestion.

Acute inhalation toxicity : Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity : Assessment: The component/mixture is moderately toxic after single

contact with skin.

**Acetaldehyde:**

Acute oral toxicity : LD50 (Rat): 661 mg/kg  
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat): 13300 ppm  
Exposure time: 4 h  
Test atmosphere: gas  
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : Assessment: The component/mixture is toxic after single contact with skin.

Acute toxicity (other routes of administration) : LD50 (Rat): 640 mg/kg  
Application Route: Subcutaneous

**Skin corrosion/irritation** : No information available.

**Serious eye damage/eye irritation**

**Product:**

Result : Irreversible effects on the eye

**Components:**

**N,N-Dimethylformamide:**

Result : Mild eye irritation

**Acetaldehyde:**

Result : Eye irritation

**Respiratory or skin sensitisation**

**Components:**

**Acetaldehyde:**

Assessment : May cause sensitisation by skin contact.

**Germ cell mutagenicity**

**Product:**

Germ cell mutagenicity- Assessment : Suspected of inducing heritable mutations in the germ cells of humans.

**Components:**

**N,N-Dimethylformamide:**

Germ cell mutagenicity- Assessment : Suspected of inducing heritable mutations in the germ cells of humans.

**Acetaldehyde:**

Germ cell mutagenicity- Assessment : Suspected of inducing heritable mutations in the germ cells of humans.

**Carcinogenicity**

**Product:**

Carcinogenicity - Assessment : Presumed to have carcinogenic potential for humans

**Components:**

**N,N-Dimethylformamide:**

Carcinogenicity - Assessment : Presumed to have carcinogenic potential for humans

**Acetaldehyde:**

Carcinogenicity - Assessment : Presumed to have carcinogenic potential for humans

**Reproductive toxicity**

**Product:**

Reproductive toxicity - Assessment : Presumed human reproductive toxicant

**Components:**

**N,N-Dimethylformamide:**

Reproductive toxicity - Assessment : Presumed human reproductive toxicant

**Acetaldehyde:**

Reproductive toxicity - Assessment : Presumed human reproductive toxicant

**STOT - single exposure**

**Product:**

Target Organs : Liver  
Assessment : Causes damage to organs.

Target Organs : Respiratory system  
Assessment : May cause damage to organs.

**Components:**

**N,N-Dimethylformamide:**

Target Organs : Liver  
Assessment : Causes damage to organs.

Target Organs : Respiratory system  
Assessment : May cause damage to organs.

**Acetaldehyde:**

Assessment : May cause respiratory irritation., May cause drowsiness or dizziness.

Target Organs : Respiratory system, Central nervous system  
Assessment : Causes damage to organs.

**STOT - repeated exposure**

**Product:**

Target Organs : Liver  
Assessment : Causes damage to organs through prolonged or repeated exposure.

Target Organs : Respiratory system  
Assessment : May cause damage to organs through prolonged or repeated exposure.



**Components:**

**N,N-Dimethylformamide:**

Target Organs : Liver  
Assessment : Causes damage to organs through prolonged or repeated exposure.

**Acetaldehyde:**

Target Organs : Respiratory system  
Assessment : Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity** : No information available.

**Aspiration hazard** : No information available.

**RTECS No.** : LQ2100000 (N,N-Dimethylformamide)  
AB1925000 (Acetaldehyde)

**11.2 Information on other hazards**

**Endocrine disrupting properties**

**Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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**SECTION 12: Ecological information**

**12.1 Toxicity**

**Components:**

**N,N-Dimethylformamide:**

Toxicity to fish : LC50 (*Oryzias latipes* (Japanese medaka)): > 100 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 1 000 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (*Selenastrum capricornutum* (green algae)): > 1 000 mg/l  
Exposure time: 72 h

NOEC (*Selenastrum capricornutum* (green algae)): > 1 000 mg/l  
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC: > 100 mg/l  
Exposure time: 21 d  
Species: *Oryzias latipes* (Japanese medaka)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 1 000 mg/l  
Exposure time: 21 d  
Species: *Daphnia magna* (Water flea)

**Acetaldehyde:**

Toxicity to fish : LC50 (*Pimephales promelas* (fathead minnow)): 30,8 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 30 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (*Selenastrum capricornutum* (green algae)): 26 mg/l

Exposure time: 72 h

### Ecotoxicology Assessment

- Acute aquatic toxicity : Harmful to aquatic life.  
Chronic aquatic toxicity : This product has no known ecotoxicological effects.

## 12.2 Persistence and degradability

### Components:

#### **N,N-Dimethylformamide:**

- Biodegradability : Result: Not biodegradable  
Biodegradation: 4,4 %  
Related to: Biochemical oxygen demand

#### **Acetaldehyde:**

- Biodegradability : Result: Readily biodegradable.  
Biodegradation: 80 %  
Related to: Biochemical oxygen demand

## 12.3 Bioaccumulative potential

### Components:

#### **N,N-Dimethylformamide:**

- Bioaccumulation : Concentration: 20 ppm  
Bioconcentration factor (BCF): 0,3 - 0,8  
  
Concentration: 2 ppm  
Bioconcentration factor (BCF): 0,3 - 1,2

- Partition coefficient: n-octanol/water : -1,01

#### **Acetaldehyde:**

- Partition coefficient: n-octanol/water : 0,63

## 12.4 Mobility in soil

### Components:

#### **N,N-Dimethylformamide:**

- Distribution among environmental compartments : Koc: 1

## 12.5 Results of PBT and vPvB assessment

### Product:

- Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## 12.6 Endocrine disrupting properties

### Product:

- Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## 12.7 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

- Product : Disposal in accordance with local and national regulations.  
Take precautions against ignition or explode.  
Entrust disposal to a licensed waste disposal company.
- Contaminated packaging : Disposal in accordance with local and national regulations.  
Before disposal of used container, remove contents completely.

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## SECTION 14: Transport information

### 14.1 UN number or ID number

- ADR : UN 1992
- IMDG : UN 1992
- IATA : UN 1992

### 14.2 UN proper shipping name

- ADR : FLAMMABLE LIQUID, TOXIC, N.O.S.
- IMDG : FLAMMABLE LIQUID, TOXIC, N.O.S.
- IATA : Flammable liquid, toxic, n.o.s.

### 14.3 Transport hazard class(es)

- |      | Class | Subsidiary risks |
|------|-------|------------------|
| ADR  | : 3   | 6.1              |
| IMDG | : 3   | 6.1              |
| IATA | : 3   | 6.1              |

### 14.4 Packing group

- ADR**
- Packing group : III
- Classification Code : FT1
- Hazard Identification Number : 36
- Tunnel restriction code : (D/E)
- IMDG**
- Packing group : III
- EmS Code : F-E, S-D
- IATA (Cargo)**
- Packing instruction (cargo aircraft) : 366
- Packing instruction (LQ) : Y343
- Packing group : III
- IATA (Passenger)**
- Packing instruction (passenger aircraft) : 355
- Packing instruction (LQ) : Y343
- Packing group : III

### 14.5 Environmental hazards

- ADR
- Environmentally hazardous : no

#### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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### SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:  
Number on list 3

N,N-Dimethylformamide (Number on list 76, 72, 30, 3)

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : N,N-Dimethylformamide

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Water hazard class (Germany) : WGK 2 obviously hazardous to water  
Classification according to AwSV, Annex 1 (5.2)

#### Other regulations:

The product is subject to the supply restrictions of the Ordinance on the Prohibition of Chemicals.

Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG).

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

#### The components of this product are reported in the following inventories:

CH BAGREG : On the inventory, or in compliance with the inventory

TSCA : All substances listed as active on the TSCA inventory

AIIC : On the inventory, or in compliance with the inventory

DSL : All components of this product are on the Canadian DSL

ENCS : On the inventory, or in compliance with the inventory

ISHL : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
NZIoC	:	Not in compliance with the inventory

## 15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance.

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## SECTION 16: Other information

### Full text of H-Statements

H224	:	Extremely flammable liquid and vapour.
H226	:	Flammable liquid and vapour.
H302	:	Harmful if swallowed.
H311	:	Toxic in contact with skin.
H312	:	Harmful in contact with skin.
H317	:	May cause an allergic skin reaction.
H319	:	Causes serious eye irritation.
H331	:	Toxic if inhaled.
H332	:	Harmful if inhaled.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H341	:	Suspected of causing genetic defects.
H350	:	May cause cancer.
H360	:	May damage fertility or the unborn child.
H360D	:	May damage the unborn child.
H370	:	Causes damage to organs.
H371	:	May cause damage to organs.
H372	:	Causes damage to organs through prolonged or repeated exposure.

### Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Carc.	:	Carcinogenicity
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Muta.	:	Germ cell mutagenicity
Repr.	:	Reproductive toxicity
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2004/37/EC	:	Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
2009/161/EU	:	Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
DE TRGS 900	:	Germany. TRGS 900 - Occupational exposure limit values.
2004/37/EC / STEL	:	Short term exposure limit
2004/37/EC / TWA	:	Long term exposure limit
2009/161/EU / TWA	:	Limit Value - eight hours
2009/161/EU / STEL	:	Short term exposure limit
DE TRGS 900 / AGW	:	Time Weighted Average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA

- European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

**Classification of the mixture:**

Flam. Liq. 3	H226
Acute Tox. 4	H302
Acute Tox. 3	H331
Eye Dam. 1	H318
Skin Sens. 1	H317
Muta. 2	H341
Carc. 1B	H350
Repr. 1B	H360
STOT SE 1	H370
STOT SE 2	H371
STOT RE 1	H372
STOT RE 2	H373

**Classification procedure:**

Calculation method
Based on product data or assessment
Based on product data or assessment
Based on product data or assessment
Calculation method
Based on product data or assessment
Based on product data or assessment
Based on product data or assessment
Based on product data or assessment
Based on product data or assessment
Based on product data or assessment

This SDS was prepared sincerely based on the information obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling operations, sufficient care should be taken, in addition to the safety measures suitable for the given situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.

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