

Ramsauer GmbH & Co KG  
5350 Strobl / Wolfgangsee

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

**1.1 Product identifier**

**2-K-PU Kleber 622, Comp. B**

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

**1.2.1 Relevant uses**

Adhesive  
Hardener

**1.2.2 Uses advised against**

None known.

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

**Company**

Ramsauer GmbH & Co KG  
Alte Bundesstraße 147  
5350 Strobl / Wolfgangsee / AUSTRIA  
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**Address enquiries to**

**Technical information**

[office@ramsauer.at](mailto:office@ramsauer.at)

**Safety Data Sheet**

[sdb@chemiebuero.de](mailto:sdb@chemiebuero.de) (No dispatch of safety data sheets)  
Safety data sheets are available from the supplier.

**1.4 Emergency telephone number**

**Advisory body**

+43 (0) 1 406 43 43 (24h)

**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture [REGULATION (EC) No 1272/2008]**

STOT SE 3: H335 May cause respiratory irritation.  
Skin Sens. 1: H317 May cause an allergic skin reaction.  
Acute Tox. 4: H332 Harmful if inhaled.

**2.2 Label elements**

The product is required to be labelled in accordance with regulation CLP.

**Hazard pictograms**



**Signal word**

WARNING

**Contains:**

HDI oligomers, isocyanurate  
Hexamethylene-diisocyanate

**Hazard statements**

H335 May cause respiratory irritation.  
H317 May cause an allergic skin reaction.  
H332 Harmful if inhaled.

**Precautionary statements**

P261 Avoid breathing vapours.  
P280 Wear protective gloves.  
P302+P352 IF ON SKIN: Wash with plenty of water / soap.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312 Call a POISON CENTER / doctor if you feel unwell.

**Special labelling**

EUH204 Contains isocyanates. May produce an allergic reaction.

-----  
As from 24 August 2023 adequate training is required before industrial or professional use.  
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### 2.3 Other hazards

#### Human health dangers

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.

#### Environmental 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.

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.

#### Other hazards

Further hazards were not determined with the current level of knowledge.

## SECTION 3: Composition / Information on ingredients

### 3.1 Substances

not applicable

### 3.2 Mixtures

The product is a mixture.

Range [%]	Substance
60 - <80	HDI oligomers, isocyanurate CAS: 28182-81-2, EINECS/ELINCS: 931-274-8, Reg-No.: 01-2119485796-17-XXXX GHS/CLP: Skin Sens. 1: H317 - Acute Tox. 4: H332 - STOT SE 3: H335
<0,1	Hexamethylene-diisocyanate CAS: 822-06-0, EINECS/ELINCS: 212-485-8, EU-INDEX: 615-011-00-1, Reg-No.: 01-2119457571-37-XXXX GHS/CLP: Acute Tox. 4: H302 - Acute Tox. 1: H330 - Skin Irrit. 2: H315 - Eye Irrit. 2: H319 - Resp. Sens. 1: H334 - STOT SE 3: H335 - Skin Sens. 1: H317 SCL [%]: >=0,5: Skin Sens. 1: H317, >=0,5: Resp. Sens. 1: H334

#### Comment on component parts

For full text of H-statements: see SECTION 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General information

Remove contaminated soaked clothing immediately and dispose of safely.

#### Inhalation

Remove the victim into fresh air and keep him calm.  
In the event of symptoms seek medical treatment.

#### Skin contact

In the event of contact with the skin wash immediately with polyethylene glycol, then with plenty of water.  
Consult a doctor if skin irritation persists.

#### Eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.

#### Ingestion

Do not induce vomiting.  
Rinse out mouth and give plenty of water to drink.  
Consult a doctor immediately.

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

Irritant effects  
Allergic reactions

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

Treat symptomatically.  
Forward this sheet to your doctor.

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## SECTION 5: Fire-fighting measures

### 5.1 Extinguishing media

Suitable extinguishing media      Carbon dioxide.  
Dry powder.  
Sand.

Extinguishing media that must not be used      Full water jet

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

In the event of fire the following can be released:

Nitrogen oxides (NO<sub>x</sub>).  
Hydrogen cyanide (HCN).  
Isocyanate  
Carbon monoxide (CO)

### 5.3 Advice for firefighters

Use self-contained breathing apparatus.  
Wear full protective suit.

Collect contaminated firefighting water separately, must not be discharged into the drains.  
Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

## SECTION 6: Accidental release measures

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

Ensure adequate ventilation.  
Use personal protective equipment (protective gloves, safety glasses, protective clothing).  
High risk of slipping due to leakage/spillage of product.

### 6.2 Environmental precautions

Prevent spread over a wide area (e.g. by containment or oil barriers).  
Do not discharge into the drains/surface waters/groundwater.

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

Pick up with absorbent material (e.g. sand, sawdust, universal absorbent, diatomaceous earth).  
Dispose of absorbed material in accordance within the regulations.

### 6.4 Reference to other sections

See SECTION 8+13

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Use only in well-ventilated areas.  
Provide suitable vacuuming at the processing machines.

Wash hands before breaks and after work.  
Do not eat, drink or smoke when using this product.  
Contaminated work clothing should not be allowed out of the workplace.  
Use barrier skin cream.  
Keep away from food and drink.  
Take off contaminated clothing and wash before reuse.

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## 7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container.  
Prevent penetration into the ground.  
Keep away from water.  
Do not store together with oxidizing agents.  
Do not store together with food and animal food/diet.  
Keep container tightly closed.  
Keep container in a well-ventilated place.  
Protect from atmospheric moisture and water.  
Store in a dry place.  
Protect from heat/overheating and from sun.  
Do not keep at temperatures above 50 °C.  
Keep away from frost.

## 7.3 Specific end use(s)

See product use, SECTION 1.2

## SECTION 8: Exposure controls / personal protection

### 8.1 Control parameters

Ingredients with occupational exposure limits to be monitored EU (2004/37/EG)

not relevant

#### DNEL

Substance
Hexamethylene-diisocyanate, CAS: 822-06-0
Industrial, inhalative, Acute - local effects, 0,07 mg/m <sup>3</sup>
Industrial, inhalative, Long-term - local effects, 0,035 mg/m <sup>3</sup>
HDI oligomers, isocyanurate, CAS: 28182-81-2
Industrial, inhalative, Long-term - local effects, 500 µg/m <sup>3</sup>
Industrial, inhalative, Acute - local effects, 1 mg/m <sup>3</sup>

#### PNEC

Substance
Hexamethylene-diisocyanate, CAS: 822-06-0
sewage treatment plants (STP), 8,42 mg/l
freshwater, 0,049 mg/L
seawater, 0,005 mg/L
sediment (freshwater), 0,674 mg/kg sediment dw
sediment (seawater), 0,067 mg/kg sediment dw
soil, 0,523 mg/kg soil dw
HDI oligomers, isocyanurate, CAS: 28182-81-2
freshwater, 127 µg/L
seawater, 12,7 µg/L
sewage treatment plants (STP), 88 mg/L
sediment (freshwater), 266701 mg/kg sediment dw
sediment (seawater), 26670 mg/kg sediment dw
soil, 53,183 g/kg

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## 8.2 Exposure controls

<b>Additional advice on system design</b>	Ensure adequate ventilation on workstation. Use suitable exhaust ventilation. Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.
<b>Eye protection</b>	safety glasses (EN 166:2001)
<b>Hand protection</b>	The details concerned are recommendations. Please contact the glove supplier for further information. 0,7 mm Butyl rubber, >480 min (EN 374-1/-2/-3).
<b>Skin protection</b>	Protective clothing (EN 340)
<b>Other</b>	Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier. Do not breathe vapour/spray. Avoid contact with eyes and skin.
<b>Respiratory protection</b>	In the event of occupational exposure limits being exceeded or of inadequate ventilation: wear appropriate respiratory protection. Short term: filter apparatus, combination filter A-P2. (DIN EN 14387)
<b>Thermal hazards</b>	No information available.
<b>Delimitation and monitoring of the environmental exposition</b>	Protect the environment by applying appropriate control measures to prevent or limit emissions.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<b>Physical state</b>	liquid
<b>Form</b>	pasty
<b>Color</b>	various
<b>Odor</b>	characteristic
<b>Odour threshold</b>	not determined
<b>pH-value</b>	not applicable
<b>pH-value [1%]</b>	not applicable
<b>Boiling point or initial boiling point and boiling range [°C]</b>	not determined
<b>Flash point [°C]</b>	not applicable
<b>Flammability</b>	not applicable
<b>Lower explosion limit</b>	not determined
<b>Upper explosion limit</b>	not determined
<b>Oxidising properties</b>	no
<b>Vapour pressure/gas pressure [kPa]</b>	not determined
<b>Density [g/cm<sup>3</sup>]</b>	ca. 1,36 (20°C)
<b>Relative density</b>	not determined
<b>Bulk density [kg/m<sup>3</sup>]</b>	not applicable
<b>Solubility in water</b>	insoluble reacts with water
<b>Solubility other solvents</b>	No information available.
<b>Partition coefficient n-octanol/water (log value)</b>	not determined
<b>Kinematic viscosity</b>	not determined
<b>Relative vapour density</b>	not determined
<b>Melting point [°C]</b>	not determined
<b>Auto-ignition temperature [°C]</b>	not determined
<b>Decomposition temperature [°C]</b>	not determined
<b>Particle characteristics</b>	No information available.

### 9.2 Other information

No information available.

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No dangerous reactions known if used as directed.

### 10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

### 10.3 Possibility of hazardous reactions

Reactions with water, with formation of carbon dioxide.

Reactions with alcohols.

Reactions with amines.

Development of pressure and risk of bursting in closed containers.

(200°C) Risk of polymerisation.

### 10.4 Conditions to avoid

Strong heating.

Water

### 10.5 Incompatible materials

See SECTION 10.3.

### 10.6 Hazardous decomposition products

In the event of fire: See SECTION 5.

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**SECTION 11: Toxicological information**

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

**Acute oral toxicity** Based on available data, the classification criteria are not met.

Product
oral, Based on the available information, the classification criteria are not fulfilled.
Substance
Hexamethylene-diisocyanate, CAS: 822-06-0
LD50, oral, Rat, 746 mg/kg bw
HDI oligomers, isocyanurate, CAS: 28182-81-2
LD50, oral, Rat, 2500 mg/kg bw

**Acute dermal toxicity** Based on available data, the classification criteria are not met.

Product
dermal, Based on the available information, the classification criteria are not fulfilled.
Substance
Hexamethylene-diisocyanate, CAS: 822-06-0
LD50, dermal, Rat, > 7000 mg/kg bw
HDI oligomers, isocyanurate, CAS: 28182-81-2
LD10, dermal, Rabbit, 2000 mg/kg bw

**Acute inhalational toxicity** Based on the available information, the classification criteria are fulfilled.

Product
ATE-mix, inhalation (vapour), 15,83 mg/L (4 h)
Substance
Hexamethylene-diisocyanate, CAS: 822-06-0
LC50, inhalative, Rat, 0,124 mg/l 4h
NOAEL, inhalative, Rat, < 0,055 mg/l
HDI oligomers, isocyanurate, CAS: 28182-81-2
LC50, inhalative, Rat, 390 - 543 mg/m <sup>3</sup>

**Serious eye damage/irritation** Based on available data, the classification criteria are not met.

Substance
Hexamethylene-diisocyanate, CAS: 822-06-0
Eye, irritant
HDI oligomers, isocyanurate, CAS: 28182-81-2
Eye, Rabbit, OECD 405, non-irritating

**Skin corrosion/irritation** Based on available data, the classification criteria are not met.

Substance
Hexamethylene-diisocyanate, CAS: 822-06-0
dermal, irritant
HDI oligomers, isocyanurate, CAS: 28182-81-2
dermal, Rabbit, OECD 404, non-irritating

**Respiratory or skin sensitisation** May cause an allergic skin reaction.  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Substance
Hexamethylene-diisocyanate, CAS: 822-06-0
dermal, sensitising
inhalative, sensitising

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HDI oligomers, isocyanurate, CAS: 28182-81-2

dermal, Guinea pig, OECD 406, sensitising

**Specific target organ toxicity — single exposure** — May cause respiratory irritation.

Substance

Hexamethylene-diisocyanate, CAS: 822-06-0

inhalative, irritant

**Specific target organ toxicity — repeated exposure** — Based on available data, the classification criteria are not met.

Substance

Hexamethylene-diisocyanate, CAS: 822-06-0

NOAEC, oral, Rat, 35 µg/m<sup>3</sup> (chronic), The effects observed are not sufficient for classification.

HDI oligomers, isocyanurate, CAS: 28182-81-2

NOAEC, inhalative, Rat, 3,3 mg/m<sup>3</sup>, OECD 413, adverse effect observed

**Mutagenicity** — Does not contain a relevant substance that meets the classification criteria.

Substance

Hexamethylene-diisocyanate, CAS: 822-06-0

in vitro, no adverse effect observed

in vivo, no adverse effect observed

**Reproduction toxicity** — Does not contain a relevant substance that meets the classification criteria.

**- Fertility**

Substance

Hexamethylene-diisocyanate, CAS: 822-06-0

NOAEC, inhalative, Rat, 2,03 mg/m<sup>3</sup> (subchronic), no adverse effect observed

**- Development**

Substance

Hexamethylene-diisocyanate, CAS: 822-06-0

NOAEC, inhalative, Rat, 2,03 mg/m<sup>3</sup> (subchronic), no adverse effect observed

**Carcinogenicity** — Does not contain a relevant substance that meets the classification criteria.

Substance

Hexamethylene-diisocyanate, CAS: 822-06-0

NOAEC, inhalative, Rat, 1,15 mg/m<sup>3</sup> (chronic), no adverse effect observed

**Aspiration hazard** — Based on available data, the classification criteria are not met.

**General remarks**

Toxicological data of complete product are not available.

**11.2 Information on other hazards**

**11.2.1 Endocrine disrupting properties**

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.

**11.2.2 Other information**

none



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## SECTION 12: Ecological information

### 12.1 Toxicity

Ecological data of complete product are not available.

Substance
Hexamethylene-diisocyanate, CAS: 822-06-0
EC50, (72h), <i>Desmodesmus subspicatus</i> , > 77,4 mg/l (IUCLID)
LC0, (96h), <i>Brachidanio rerio</i> , > 82,8 mg/l (IUCLID)
HDI oligomers, isocyanurate, CAS: 28182-81-2
EC50, (72h), Algae, 1 g/L
EL50, (48h), Crustacea, 127 mg/L
LL0, (96h), Fish, 100 mg/L

### 12.2 Persistence and degradability

<b>Behaviour in environment compartments</b>	not determined
<b>Behaviour in sewage plant</b>	not determined
<b>Biological degradability</b>	The product is not biodegradable.

### 12.3 Bioaccumulative potential

No information available.

### 12.4 Mobility in soil

No information available.

### 12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

### 12.6 Endocrine disrupting properties

Contains no ingredients with endocrine-disrupting properties.

### 12.7 Other adverse effects

Ecological data of complete product are not available.  
Do not discharge product unmonitored into the environment or into the drainage.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

#### Product

Dispose of as hazardous waste.  
Coordinate disposal with the authorities if necessary.

**Waste no. (recommended)** 080501\*  
080409\*

#### Contaminated packaging

Uncontaminated packaging may be taken for recycling.  
Packaging that cannot be cleaned should be disposed of as for product.

**Waste no. (recommended)** 150110\* packaging containing residues of or contaminated by hazardous substances

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**SECTION 14: Transport information**

**14.1 UN number or ID number**

Transport by land according to ADR/RID not applicable

Inland navigation (ADN) not applicable

Marine transport in accordance with IMDG not applicable

Air transport in accordance with IATA not applicable

**14.2 UN proper shipping name**

Transport by land according to ADR/RID NO DANGEROUS GOODS

Inland navigation (ADN) NO DANGEROUS GOODS

Marine transport in accordance with IMDG NOT CLASSIFIED AS "DANGEROUS GOODS"

Air transport in accordance with IATA NOT CLASSIFIED AS "DANGEROUS GOODS"

**14.3 Transport hazard class(es)**

Transport by land according to ADR/RID not applicable

Inland navigation (ADN) not applicable

Marine transport in accordance with IMDG not applicable

Air transport in accordance with IATA not applicable

**14.4 Packing group**

Transport by land according to ADR/RID not applicable

Inland navigation (ADN) not applicable

Marine transport in accordance with IMDG not applicable

Air transport in accordance with IATA not applicable

**14.5 Environmental hazards**

Transport by land according to ADR/RID no

Inland navigation (ADN) no

Marine transport in accordance with IMDG no

Air transport in accordance with IATA no

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#### 14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

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

not applicable

### SECTION 15: Regulatory information

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

<b>EEC-REGULATIONS</b>	2008/98/EG (2000/532/EC ); 2010/75/EU; 2004/42/EG; (EG) 648/2004; (EC) 1907/2006 (REACH); (EU) 1272/2008; 75/324/EWG ((EC) 2016/2037); (EU) 2020/878; (EU) 2016/131; (EU) 517/2014; (EU) 2019/1148; (EU) 2019/1021, (EU) 2023/707
- <b>Comment on component parts</b>	Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
- <b>Annex XIV (REACH)</b>	According to Annex XIV of Regulation (EC) 1907/2006 (REACH) the product does not contain any substances $\geq$ 0.1% that are subject to authorisation.
- <b>Annex XVII (REACH)</b>	According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product contains $\geq$ 0.1% of substances with the following restrictions. 75 According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product is not subject to any restrictions.
<b>TRANSPORT-REGULATIONS</b>	ADR (2025); IMDG-Code (2025, 42. Amdt.); IATA-DGR (2025)
<b>NATIONAL REGULATIONS (EU):</b>	
- <b>Observe employment restrictions for people</b>	Observe employment restrictions for young people. Observe employment restrictions for mothers-to-be and nursing mothers.
- <b>VOC (2010/75/CE)</b>	0 %

#### 15.2 Chemical safety assessment

not applicable

### SECTION 16: Other information

#### 16.1 Hazard statements (SECTION 3)

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H319 Causes serious eye irritation.  
H315 Causes skin irritation.  
H330 Fatal if inhaled.  
H302 Harmful if swallowed.  
H335 May cause respiratory irritation.  
H332 Harmful if inhaled.  
H317 May cause an allergic skin reaction.

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## 16.2 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route  
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses  
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure  
ATE = acute toxicity estimate  
CAS = Chemical Abstracts Service  
CLP = Classification, Labelling and Packaging  
DMEL = Derived Minimum Effect Level  
DNEL = Derived No Effect Level  
EC50 = Median effective concentration  
ECB = European Chemicals Bureau  
EEC = European Economic Community  
EINECS = European Inventory of Existing Commercial Chemical Substances  
EL50 = Median effective loading  
ELINCS = European List of Notified Chemical Substances  
EmS = Emergency Schedules  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk  
IC50 = Inhibition concentration, 50%  
IMDG = International Maritime Code for Dangerous Goods  
IUCLID = International Uniform Chemical Information Database  
IVIS = In vitro irritation score  
LC50 = Lethal concentration, 50%  
LD50 = Median lethal dose  
LC0 = lethal concentration, 0%  
LOAEL = lowest-observed-adverse-effect level  
LL50 = Median lethal loading  
LQ = Limited Quantities  
MARPOL = International Convention for the Prevention of Marine Pollution from Ships  
NOAEL = No Observed Adverse Effect Level  
NOEC = No Observed Effect Concentration  
PBT = Persistent, Bioaccumulative and Toxic substance  
PNEC = Predicted No-Effect Concentration  
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals  
STP = Sewage Treatment Plant  
TLV@TWA = Threshold limit value – time-weighted average  
TLV@STEL = Threshold limit value – short-time exposure limit  
VOC = Volatile Organic Compounds  
vPvB = very Persistent and very Bioaccumulative

## 16.3 Other information

This document does not comply with Regulation (EC) No 1907/2006, article 31 (5) and may be used for internal purposes only.

### Classification procedure

STOT SE 3: H335 May cause respiratory irritation. (Calculation method)  
Skin Sens. 1: H317 May cause an allergic skin reaction. (Calculation method)  
Acute Tox. 4: H332 Harmful if inhaled. (Calculation method)

### Modified position

1.4, 2.2, 2.3, 3.2, 8.1, 8.2, 9.1, 9.2, 11.1, 11.2, 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7, 15.1, 15.2, 16.1, 16.2, 16.3

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