

Safety data sheet
 according to Regulation (EC) No. 1907/2006 as amended from
 time to time

Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

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

- **1.1. Product identifier**
- Trade name / Article-No: **KLEIBERIT 510.3.05**
- UFI: E0FT-J0X9-S00Y-WAX1
- **1.2. Relevant identified uses of the substance / mixture or uses advised against**
 For professional users only.
- **Application of the substance / the mixture** Adhesives
- **1.3. Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 KLEIBERIT SE & Co. KG
 Max-Becker-Str. 4
 76356 Weingarten
 Germany
- **Further information obtainable from:**
 phone: +49 (0) 7244 62-0
 FAX: +49 (0) 7244 700-0
 E-Mail: hse@kleiberit.com
- **1.4. Emergency telephone number:**
+44 1235 239670 European regional number (European languages)
112 Emergency telephone number for Malta
543 22 22 Icelandic University Hospital

SECTION 2: Hazards identification

- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**
 Acute Tox. 4 H332 Harmful if inhaled.
 Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2 H319 Causes serious eye irritation.
 Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 Skin Sens. 1 H317 May cause an allergic skin reaction.
 Carc. 2 H351 Suspected of causing cancer.
 STOT SE 3 H335 May cause respiratory irritation.
 STOT RE 2 H373 May cause damage to the respiratory system through prolonged or repeated exposure.
 Route of exposure: Inhalation.

- **2.2. Label elements**
- **Hazard pictograms**



GHS07 GHS08

- **Signal word** Danger
- **Hazard-determining components of labelling:**
 methylenediphenyl diisocyanate, modified
 1,2-Ethanediamine, polymer with 1,1'-methylenebis[4-isocyanatobenzene] homopolymer, methyloxirane and oxirane

(Contd. on page 2)

Safety data sheet

according to Regulation (EC) No. 1907/2006 as amended from
time to time

Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

Trade name / Article-No: KLEIBERIT **510.3.05**

(Contd. of page 1)

Hazard statements

- H332 Harmful if inhaled.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H351 Suspected of causing cancer.
- H335 May cause respiratory irritation.
- H373 May cause damage to the respiratory system through prolonged or repeated exposure. Route of exposure: Inhalation.

Precautionary statements

- P260 Do not breathe mist/vapours/spray.
- P280 Wear protective gloves / eye protection.
- P302+P352 IF ON SKIN: Wash with plenty of water and soap.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P314 Get medical advice/attention if you feel unwell.

Additional information:

- Contains isocyanates. May produce an allergic reaction.
- As from 24 August 2023 adequate training is required before industrial or professional use.

2.3. Other hazards**Results of PBT and vPvB assessment**

- PBT**: Not applicable.
- vPvB**: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

- Description**: Mixture of substances listed below with nonhazardous additions.

Dangerous components:

Registry-No's	Identification / Classification GHS-CLP	%
CAS: 25686-28-6 Reg.nr.: 01-2119457013-49-XXXX	methylenediphenyl diisocyanate, modified Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335, EUH204 ATE: LC ₅₀ /4 h inhalative: 11 mg/l Specific concentration limits: Skin Irrit. 2; H315: C ≥ 5 % Eye Irrit. 2; H319: C ≥ 5 % Resp. Sens. 1; H334: C ≥ 0.1 % STOT SE 3; C ≥ 5 %	30-40%
CAS: 9048-57-1	4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335 ATE: LC ₅₀ /4 h inhalative: 11 mg/l	20-30%
CAS: 60551-33-9	1,2-Ethanediamine, polymer with 1,1'-methylenebis[4- isocyanatobenzene] homopolymer, methyloxirane and oxirane Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1B, H317; STOT SE 3, H335 ATE: LC ₅₀ /4 h inhalative: 11 mg/l	20-30%

(Contd. on page 3)

Safety data sheet

according to Regulation (EC) No. 1907/2006 as amended from
time to time

Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

Trade name / Article-No: **KLEIBERIT 510.3.05**

(Contd. of page 2)

CAS: 28182-81-2 Reg.nr.: 01-2119485796-17-XXXX	aliphatic polyisocyanate, based on HDI Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335 ATE: LC ₅₀ /4 h inhalative: 11 mg/l	3-5%
Reg.nr.: 01-2119472146-39-XXXX	hydrocarbons, C11-C12, isoalkanes, < 2% aromatics Flam. Liq. 3, H226; Asp. Tox. 1, H304; Aquatic Chronic 4, H413	≤3%
CAS: 4083-64-1 Reg.nr.: 01-2119980050-47-XXXX	tosyl isocyanate Resp. Sens. 1, H334; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335, EUH014, EUH204 Specific concentration limits: Eye Irrit. 2; H319: C ≥ 5 % STOT SE 3; H335: C ≥ 5 % Skin Irrit. 2; H315: C ≥ 5 %	≥0.1-<0.5%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· 4.1. Description of first aid measures

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

Take affected persons into fresh air and keep quiet.

· **After skin contact:**

Treat affected skin with cotton wool or cellulose. Then wash and rinse thoroughly with water and a mild cleaning agent.

If skin irritation continues, consult a doctor.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:** Call for a doctor immediately.

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

No further relevant information available.

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

No further relevant information available.

SECTION 5: Firefighting measures

· 5.1. Extinguishing media

· **Suitable extinguishing agents:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· 5.2. Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Traces: Hydrogen cyanide (HCN)

· 5.3. Advice for firefighters

· **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

· 6.1. Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Particular danger of slipping on leaked/spilled product.

Use respiratory protective device against the effects of fumes/dust/aerosol.

· 6.2. Environmental precautions: No special measures required.

· 6.3. Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralising agent.

(Contd. on page 4)

Safety data sheet

according to Regulation (EC) No. 1907/2006 as amended from time to time

Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

Trade name / Article-No: **KLEIBERIT 510.3.05**

(Contd. of page 3)

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

6.4. Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Handle the substance preferably in closed system

Enclosure or extractor facilities are required.

Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the vapour concentration below the workplace limit, wear an adequate respiratory protective device.

Not less than 3-5 air exchanges per hour

Wear protective gloves/protective clothing/eye protection/face protection.

Use only in well ventilated areas.

regular check up, maintenance and cleaning of equipment and machines

Avoid contact with the skin.

It is advised against using the product if there is a sensitivity of the airways or skin (asthma, chronic bronchitis, chronic skin disease)

Allow access to authorised personnel only.

Handling procedures must be well documented.

have emergency plan in place, to minimize impact

Clean the pipe before decoupling

General protective and hygienic measures:

Immediately remove all soiled and contaminated clothing

Avoid contact with the skin.

Appropriate regular employee training.

Keep good industrial hygiene.

7.2. Conditions for safe storage, including any incompatibilities**Storage:****Requirements to be met by storerooms and receptacles:** Keep container tightly closed.**Information about storage in one common storage facility:** Observe the national regulations.**Further information about storage conditions:** None.**7.3. Specific end use(s)** No further relevant information available.**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Ingredients with limit values that require monitoring at the workplace:****DNELs****25686-28-6 methylenediphenyl diisocyanate, modified**

Dermal DNEL short term 28.7 mg/kg (human being)

Inhalative DNEL short term 0.1 mg/m³ (human being)DNEL long term 0.05 mg/m³ (human being)**28182-81-2 aliphatic polyisocyanate, based on HDI**Inhalative DNEL short term 1 mg/m³ (human being)DNEL long term 0.5 mg/m³ (human being)

(Contd. on page 5)

Safety data sheet

according to Regulation (EC) No. 1907/2006 as amended from
time to time

Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

Trade name / Article-No: **KLEIBERIT 510.3.05**

(Contd. of page 4)

- **PNECs**

- 25686-28-6 methylenediphenyl diisocyanate, modified**

PNEC- Freshwater	1 mg/l (not specified)
PNEC-seawater	0.1 mg/l (not specified)
PNEC-soil	1 mg/kg (not specified)
PNEC-wastewater treatment plant	1 mg/l (not specified)

- 28182-81-2 aliphatic polyisocyanate, based on HDI**

PNEC- Freshwater	0.127 mg/l (not specified)
PNEC-seawater	0.0127 mg/l (not specified)
PNEC-periodic release	1.27 mg/l (not specified)
PNEC-Freshwater sediment	26,670 mg/kg (not specified)
PNEC-soil	53,182 mg/kg (not specified)
PNEC-wastewater treatment plant	38.28 mg/l (not specified)

- **8.2. Exposure controls**

limit the exposure to:

8 hours

- **Appropriate engineering controls** No further data; see section 7.

- **Individual protection measures, such as personal protective equipment**

- **General protective and hygienic measures:**

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Use skin protection cream for skin protection.

- **Respiratory protection:**

Use suitable respiratory protective device in case of insufficient ventilation:

Filter A (DIN EN 14 387)

- **Hand protection** Protective gloves

- **Material of gloves** A Nitrile rubber - NBR: AlphaTec® (> 0,4 mm)

- **Eye/face protection** Safety glasses

- **Body protection:** Protective work clothing

SECTION 9: Physical and chemical properties

- **9.1. Information on basic physical and chemical properties**

- **General Information**

- **Physical state**

Fluid

- **Colour:**

Whitish

- **Odour:**

Weak, characteristic

- **Odour threshold:**

Not determined.

- **Melting point/freezing point:**

Undetermined.

- **Boiling point or initial boiling point and boiling range**

>190 °C

- **Flammability**

Not applicable.

- **Lower and upper explosion limit**

- **Lower:**

Not determined.

- **Upper:**

Not determined.

- **Flash point:**

200 °C

- **Auto-ignition temperature:**

Not applicable.

- **Decomposition temperature:**

Not determined.

- **pH**

Not determined.

- **Viscosity:**

- **Kinematic viscosity**

Not determined.

(Contd. on page 6)

Safety data sheet

according to Regulation (EC) No. 1907/2006 as amended from
time to time

Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

Trade name / Article-No: KLEIBERIT **510.3.05**

(Contd. of page 5)

· Dynamic at 20 °C:	ca. 68.000 mPas Brookfield (6 / 20 rpm)
· Solubility	
· water:	Not miscible or difficult to mix.
· Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure:	Not determined.
· Density and/or relative density	
· Density at 20 °C:	ca. 1.13 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· 9.2. Other information	
· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product does not present an explosion hazard.
· Solvent separation test:	
· Organic solvents:	2.5 %
· Change in condition	
· Evaporation rate	Not determined.
· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Void
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	Void
· Desensitised explosives	Void

SECTION 10: Stability and reactivity

- **10.1. Reactivity**
see item 10.3
No further relevant information available.
- **10.2. Chemical stability** Stable when stored and used properly.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3. Possibility of hazardous reactions** No dangerous reactions known.
- **10.4. Conditions to avoid** No further relevant information available.
- **10.5. Incompatible materials:** No further relevant information available.
- **10.6. Hazardous decomposition products:** Isocyanates

(Contd. on page 7)

Safety data sheet
according to Regulation (EC) No. 1907/2006 as amended from
time to time

Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

Trade name / Article-No: **KLEIBERIT 510.3.05**

(Contd. of page 6)

SECTION 11: Toxicological information· **11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

- **Acute toxicity** Harmful if inhaled.
- **LD/LC₅₀ values relevant for classification:**

25686-28-6 methylenediphenyl diisocyanate, modified

Oral	LD ₅₀	5,001 mg/kg (rat)
Dermal	LD ₅₀	9,401 mg/kg (rabbit)
Inhalative	LC ₅₀ /4h _(dust,mist)	0.49 mg/l (rat)

9048-57-1 4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl)

Inhalative	LC ₅₀ /4h _(dust,mist)	0.49 mg/l (rat)
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60551-33-9 1,2-Ethanediamine, polymer with 1,1'-methylenebis[4-isocyanatobenzene] homopolymer, methyloxirane and oxirane

Inhalative	LC ₅₀ /4 h	11 mg/l (ATE)
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28182-81-2 aliphatic polyisocyanate, based on HDI

Oral	LD ₅₀	>2,500 mg/kg (rat) weibliche Ratte >2500 mg/kg
Dermal	LD ₅₀	>2,000 mg/kg (rabbit) (OECD 402) >2,000 mg/kg (rat) (OECD 402)
Inhalative	LC ₅₀ /4 h	11 mg/l (ATE)

hydrocarbons, C11-C12, isoalkanes, < 2% aromatics

Oral	LD ₅₀	>5,000 mg/kg (rat)
Dermal	LD ₅₀	>5,000 mg/kg (rabbit)
Inhalative	LC ₅₀ /4 h	>5,000 mg/l (rat)

4083-64-1 tosyl isocyanate

Oral	LD ₅₀	2,600 mg/kg (rat)
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- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Causes serious eye irritation.
- **Respiratory or skin sensitisation**
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Suspected of causing cancer.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** May cause respiratory irritation.
- **STOT-repeated exposure**
May cause damage to the respiratory system through prolonged or repeated exposure. Route of exposure:
Inhalation.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**
- **Endocrine disrupting properties**

None of the ingredients is listed.

(Contd. on page 8)

EU

Safety data sheet
according to Regulation (EC) No. 1907/2006 as amended from
time to time

Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

Trade name / Article-No: **KLEIBERIT 510.3.05**

(Contd. of page 7)

SECTION 12: Ecological information· **12.1. Toxicity**· **Aquatic toxicity:****25686-28-6 methylenediphenyl diisocyanate, modified**LC₅₀ 1,001 mg / l / 96h (fish)EC₅₀ 1,001 mg / l / 24h (water flea - daphnia)EC₅₀ 1,641 mg / l / 72h (algae)**28182-81-2 aliphatic polyisocyanate, based on HDI**LC₅₀ >100 mg / l / 96h (Zebrafish - Danio rerio)EC₅₀ >100 mg / l / 48h (water flea - daphnia)EC₅₀ >100 mg / l / 72h (algae)· **12.2. Persistence and degradability** No further relevant information available.· **12.3. Bioaccumulative potential** No further relevant information available.· **12.4. Mobility in soil** No further relevant information available.· **12.5. Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.· **12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

· **12.7 Other adverse effects**· **Behaviour in sewage processing plants:**· **Remark:**

At correct sewage disposal in small quantities to biological sewage plants failures of the activated sludge are not expected.

· **Additional ecological information:**· **General notes:** Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water**SECTION 13: Disposal considerations**· **13.1. Waste treatment methods**· **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**

08 05 01* waste isocyanates

08 04 09* waste adhesives and sealants containing organic solvents or other hazardous substances

· **Uncleaned packaging:**· **Recommendation:**

Non contaminated packagings may be recycled.

Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

SECTION 14: Transport information· **14.1. UN number or ID number**· **ADR, IMDG, IATA**

Void

· **14.2. UN proper shipping name**· **DOT, ADR, IMDG, IATA**

Void

· **14.3. Transport hazard class(es)**· **Class**

Void

· **14.4. Packing group**· **ADR, IMDG, IATA**

Void

· **14.5. Environmental hazards:**

Not applicable.

(Contd. on page 9)

Safety data sheet

according to Regulation (EC) No. 1907/2006 as amended from
time to time

Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

Trade name / Article-No: **KLEIBERIT 510.3.05**

(Contd. of page 8)

- **14.6. Special precautions for user** Not applicable.
- **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**
See position no 2 - Hazards Identification

- **Directive 2012/18/EU - Seveso-III:**
- **Named dangerous substances - ANNEX I** None of the ingredients is included.
- **Regulation (EC) No 1907/2006 - REACH, ANNEX XVII** Conditions of restriction: 3
- **Regulation (EU) No 649/2012**

None of the ingredients is listed.

- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

- **REGULATION (EU) 2019/1148**
- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.

- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.

- **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

- **National regulations:**

- **D: Waterhazard class** Water hazard class 1 (Self-assessment): slightly hazardous for water.
- **Other regulations, limitations and prohibitive regulations:** For professional users only.
- **VOC - 2010/75/EU [g/L]:** <25.0 g/l
- **VOC - 2010/75/EU [%]:** <3.00 %

- **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

- H226 Flammable liquid and vapour.
- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335 May cause respiratory irritation.
- H351 Suspected of causing cancer.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H413 May cause long lasting harmful effects to aquatic life.

(Contd. on page 10)

Safety data sheet
according to Regulation (EC) No. 1907/2006 as amended from
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Printing date 04.08.2023

Version-No. 1

Revision: 04.08.2023

Trade name / Article-No: KLEIBERIT 510.3.05

(Contd. of page 9)

EUH014 Reacts violently with water.

EUH204 Contains isocyanates. May produce an allergic reaction.

- **Department issuing SDS:** Safety & Environment

- **Abbreviations and acronyms:**

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Skin Sens. 1B: Skin sensitisation – Category 1B

Carc. 2: Carcinogenicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4

EU