Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 17.01.2017 Version number 300 Revision: 12.01.2017

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

- **1.1 Product identifier**
- **Trade name KALTREINIGER**
- **Article number: LOS7650**
- **EC number:**
919-164-8
- **REACh-Registration number** 01-2119473977-17
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
For details on the identifiable uses according to EC-regulation No. 1907/2006 see annex of this safety data sheet.
- **Application of the substance / the mixture** Solvents
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
EURO-LOCK Vertriebs-GmbH
Nordweststraße 3
D - 59387 Ascheberg Tel.: +49(0) 2593/95887-0 Fax: +49(0) 2593/95887-29
- **Informing department:**
Tel.: +49(0)2593/95887-0
E-mail: info@euro-lock.de
- **1.4 Emergency telephone number:**
Tel.:+49(0) 2593/95887-0
Monday - Thursday 8:00 - 17:00 CET, Friday 8:00 - 13:00 CET

* SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**

STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure.
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.
Aquatic Chronic 3	H412	Harmful to aquatic life with long lasting effects.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the CLP regulation.
- **Hazard pictograms**

GHS08

- **Signal word** Danger
- **Hazard statements**
H372 Causes damage to organs through prolonged or repeated exposure.
H304 May be fatal if swallowed and enters airways.
H412 Harmful to aquatic life with long lasting effects.
- **Precautionary statements**

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331	Do NOT induce vomiting.

(Contd. on page 2)

(Contd. of page 1)

P314 Get medical advice/attention if you feel unwell.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Additional information:**
EUH066 Repeated exposure may cause skin dryness or cracking.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

* SECTION 3: Composition/information on ingredients

- **3.1 Substances**
- **CAS No. Designation:**
Naphtha (petroleum), hydrodesulfurized heavy

- **Identification no(s):**
- **EC number:** 919-164-8
- **Additonal information:**
The substance contains less than 0,1 % benzene. Classification and labelling as a carcinogen or mutagen is not required (Note P, Annex VI, Regulation (EC) No 1272/2008).
Each entry of an EC number starting with the number "9" is, until publication of the official registration number, a provisional number for the substance indicated by ECHA. See also section 15 for additional information on the CAS number of the substance.

* SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General advice:** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact**
Instantly wash with water and soap and rinse thoroughly. If skin irritation persists, seek medical advice.
- **After eye contact**
Rinse immediately opened eye for several minutes under running water. Then consult doctor.
- **After swallowing**
Do not provoke vomiting. Vomiting while unconscious, may cause aspiration and may lead to suffocation.
Give plenty of water to drink, but only if the patient is fully conscious. Contact a doctor.
If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
- **4.2 Most important symptoms and effects, both acute and delayed**
Headache, dizziness, nausea, unconsciousness, dryness of the skin. Irritation of the skin.
- **Information for doctor**
Renew lipid coating of the skin in order to protect against dermatitis.
Cleaning of the stomach should only be carried out with endotracheal intubation. Danger of aspiration.
Symptomatic treatment.
- **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**
CO_2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

(Contd. on page 3)

(Contd. of page 2)

- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.
- **5.2 Special hazards arising from the substance or mixture**
  Not classified as flammable but will burn. Hazardous combustion products may include carbon manoxide.
  hazard determining flue gases: carbon monoxide, soot.
- **5.3 Advice for firefighters**
- **Protective equipment:**
  Wear full protective suit with self-contained breathing apparatus.
  See section 8.
- **Additional information**
  Endangered containers in the surrounding area should be cooled with a water-hose.
  Collect contaminated fire fighting water separately. It must not enter drains.

* SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
  Wear protective equipment and keep unprotected persons away.
  Extinguish naked flames. Remove flammable sources. No smoking. Avoid sparks. Avoid contact with skin, eyes and clothing. Avoid inhalation of fumes. Air contaminated rooms thoroughly. Protect against electrostatic sparks.
- **6.2 Environmental precautions:**
  Do not allow to enter drainage system, surface or ground water.
  Do not allow to enter the ground/soil.
  If large amounts are released, the authorities must be informed.
- **6.3 Methods and material for containment and cleaning up:**
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Contaminated material has to be disposed as waste (see item 13).
- **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 information on disposal.

* SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
  Keep containers tightly sealed.
  Ensure good ventilation/exhaustion at the workplace. Avoid repeated or long-term skin contact.
  Keep away all sources of ignition. Avoid naked flames or sparks.
  Avoid Temperatures above 60 °C.
- **Information about protection against explosions and fires:**
  Keep ignition sources away - Do not smoke.
  Protect against electrostatic charges.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
  Store in cool, dry conditions in well sealed containers.
  Keep away from direct sunlight and other sources of heat or ignition.
  Do not smoke in storage areas. Keep container tightly closed and in a well-ventilated place.
- **Requirements to be met by storerooms and containers:**
  Observe official regulations on storage and handling of water harzardous substances
  Suitable material for containers and conduit: steel or stainless steel.
  Unsuitable materials and coatings: natural rubber, butyl rubber, ethylene-propylene-diene monomer (EPDM), polystyrene.

(Contd. on page 4)

(Contd. of page 3)

Store only in the original container.
Store in cool location.

- **Information about storage in one common storage facility:**
Pay attention to regulations / technical guidelines on mixed storage of flammable liquids.
Pay attention to regulations / technical guidelines on mixed storage of toxic substances
- **Further information about storage conditions:** Protect from heat and direct sunlight.
- **7.3 Specific end use(s)** No further relevant information available.

* SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical systems:**
Room ventilation i.e. vacuum suction. Measures to be taken against electro-static sparks.

- **8.1 Control parameters**

- **Components with critical values that require monitoring at the workplace:**	
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, aromatics (2-25%) (50-100%)	
TWA	Long-term value: 800 mg/m³, 100 ppm RCP, mineral spirits 175 - 220

- **DNELs** No DNEL value has been established.
- **PNECs**
Substance is a hydrocarbon with a complex, unknown or variable composition. Conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances.
- **Additional information:** The lists that were valid during the compilation were used as basis.

- **8.2 Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from food, beverages and fodder.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Gases, fumes and aerosols should not be inhaled.
- **Breathing equipment:**
If engineering controls do not maintaine airborne concentrations to a level which is adequate to protect worker health, select respiratory protective equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter, select a filter suitable for organic gases and vapours (Boiling point >65 °C.). Where respiratory protective equipment is required, use a full face mask.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space use appropriate positive pressure breathing apparatus.
- **Recommended filter device for short term use:** Combination filter A-P2
- **Protection of hands:**
Protective gloves.
Only use chemical-protective gloves with CE-labelling of category III.
Check the permeability prior to each anewed use of the glove.
- **Material of gloves**
Nitrile rubber, NBR, recommended thickness of the material: ≥ 0.4 mm, penetration time: ≥ 480 min.
Fluorocarbon rubber (Viton), recommended thickness of the material: ≥ 0.4 mm, penetration time: ≥ 480 min.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

(Contd. on page 5)

(Contd. of page 4)

- **Penetration time of glove material**
  Change gloves if notice sign of disenchantment.
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Tightly sealed safety glasses.
- **Body protection:**
  Standard protective working clothes, chemical resistant safety-shoes or wellingtons. If skin contact is possible, wear impenetrable protective clothing.

* SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**	
- **General Information**	
- **Appearance:**	
Form:	Fluid
Colour:	Colourless
- **Smell:**	Benzen-like
- **Odour threshold:**	Not determined
- **pH-value at 20 °C:**	n.a.
- **Change in condition**	
Melting point/Melting range:	< - 15 °C (DIN ISO 3016)
Boiling point/Boiling range:	182-212 °C (DIN 51751)
- **Flash point:**	65 °C (DIN 51758)
- **Ignition temperature:**	230 °C (DIN 51794)
- **Decomposition temperature:**	Not determined
- **Danger of explosion:**	Product is not explosive. However, formation of explosive air/steam mixtures is possible.
- **Critical values for explosion:**	
Lower:	0.6 Vol %
Upper:	6.1 Vol %
- **Vapour pressure at 20 °C:**	ca. 1.5 hPa
- **Density at 15 °C**	0.799 g/cm3 (DIN 51757)
- **Relative density**	Not determined
- **Vapour density**	Not determined
- **Evaporation rate**	Not determined
- **Solubility in / Miscibility with**	
Water at 20 °C:	ca. 42 mg/l
- **Partition coefficient (n-octanol/water):**	4.2-7.2 log POW (geschätzt)
- **Viscosity:**	
dynamic:	Not determined
kinematic at 25 °C:	1.5 mm²/s

(Contd. on page 6)

(Contd. of page 5)

- **9.2 Other information**	Verdunstungszahl:	227 (Ether = 1) DIN 53170
	Verdunstungszahl:	0,04 (nBuAc)= 1) ASTM D 3539
	Relative Dampfdichte:	5,4 (Luft = 1)

* SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
  Can be distilled without decomposing at normal pressure
- **10.3 Possibility of hazardous reactions** No dangerous reactions known
- **10.4 Conditions to avoid** To avoid: warmth, flames, sparks
- **10.5 Incompatible materials:** strong oxidizing agents
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known
- **Additional information:**
  Incomplete combustion will generate smoke, carbon dioxide and hazardous gases, which will include carbon monoxide.

* SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **LD/LC50 values that are relevant for classification:**
  The data are based on toxicological studies carried out on similar products.

Oral	LD50	> 15000 mg/kg (rat)
Dermal	LD50	> 3400 mg/kg (rabbit)
Inhalative	LC 50 / 4 h	> 13.1 mg/l (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation**
  Slight irritant, prolonged or repeated exposure removes lipid skin film and may cause skin irritation,
- **Serious eye damage/irritation** Causes eye discomfort, but no damage to the eye tissue.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
  Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. Aspiration into the lungs may cause chemical pneumonitis which can be fatal.
- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure**
  Causes damage to organs through prolonged or repeated exposure.
- **Aspiration hazard**
  May be fatal if swallowed and enters airways.

(Contd. on page 7)

(Contd. of page 6)

* SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:**	
LL 50 / 96 h	10 mg/l (Oncorhynchus mykiss)
EL 50 / 72 h	10 - 100 mg/l (Algae)
NOEC	0.097 mg/l (Daphnia magna) (21 d)
NOEL	> 0.01 ≤ 0.1 mg/l (fish)
NOELR	0.28 mg/l (Daphnia magna) (21d)

- **12.2 Persistence and degradability**
  All details are estimated or based on information about similar products.
  Readily biodegradable
- **12.3 Bioaccumulative potential** swims on water. Bioaccumulation possible.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
  Danger to drinking water if even small quantities leak into soil.
  Water hazard class 2 (Self-assessment): hazardous for water.
  Do not allow product to reach ground water, water bodies or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
  The following advice is related to new material and not to any processed products. In case of a mixture with other products other disposal methods may become necessary. If in doubt seek advice from product supplier or from local authorities.
- **Recommendation**
  Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
  Contaminated water to separate by separator and dispose off in line with administrative regulations.
  A used product should be recycled or used in other contexts, otherwise be handed over to an appropriate disposal site.
- **Waste disposal key number:**
  Since 01/01/99 the waste code numbers have not only been product-related but are also essentially application-related. The valid waste code number of the application can be obtained from the European waste catalogue.

- **Uncleaned packagings:** Disposal must be made according to official regulations.
- **Recommendation:**
  Rented packaging: After optimal emptying, close immediately and return to the supplier without cleaning.
  Care should be taken that no other materials get into the packaging.
  Vorsicht: Rückstände in den Behältern können eine Explosionsgefahr darstellen. Ungereinigte Behälter nicht durchlöchern, zerschneiden oder schweißen.

(Contd. on page 8)

(Contd. of page 7)

* SECTION 14: Transport information

- **14.1 UN-Number** - **ADR, IMDG, IATA**	Void
- **14.2 UN proper shipping name** - **ADR, IMDG, IATA**	Void
- **14.3 Transport hazard class(es)** - **ADR, IMDG, IATA** - **Class**	Void
- **14.4 Packing group** - **ADR, IMDG, IATA**	Void
- **14.5 Environmental hazards:** - **Marine pollutant:**	Not applicable. No
- **14.6 Special precautions for user**	Not applicable.
- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
- **Transport/Additional information:**	Not dangerous according to the above specifications.
- **UN "Model Regulation":**	Void

* SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Labelling according to Regulation (EC) No 1272/2008**
  The substance is classified and labelled according to the CLP regulation.
- **Hazard pictograms**

GHS08

- **Signal word** Danger
- **Hazard statements**
  H372 Causes damage to organs through prolonged or repeated exposure.
  H304 May be fatal if swallowed and enters airways.
  H412 Harmful to aquatic life with long lasting effects.
- **Precautionary statements**
  P260 Do not breathe dust/fume/gas/mist/vapours/spray.
  P273 Avoid release to the environment.
  P264 Wash thoroughly after handling.
  P270 Do not eat, drink or smoke when using this product.
  P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
  P331 Do NOT induce vomiting.
  P314 Get medical advice/attention if you feel unwell.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

(Contd. on page 9)

(Contd. of page 8)

- **National regulations**
- **Other regulations, limitations and prohibitive regulations**
  CAS 64742-82-1, identified by this CAS number, in countries which are not subject to the REACH Regulation.
  Note the data sheet M 017 "Solvents" BG Chemie
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

* SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing data specification sheet:** see item 1: Informing department
- **Abbreviations and acronyms:**
  RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
  ICAO: International Civil Aviation Organisation
  LEV. Local Exhaust Ventilation
  RPE: Respiratory Protective Equipment
  RCR: Risk Characterisation Ratio (RCR= PEC/PNEC)
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  IATA: International Air Transport Association
  GHS: Globally Harmonized System of Classification and Labelling of Chemicals
  CLP: Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)
  EINECS: European Inventory of Existing Commercial 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
  vPvB: very Persistent and very Bioaccumulative
  STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
  Asp. Tox. 1: Aspiration hazard – Category 1
  Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3
- *** Data compared to the previous version altered.**
- **ANNEX**
  Exposure Scenarios:
  Manufacture of substance
  Distribution of substance
  Formulation and (re)packing of substances and mixtures
  Use in laboratories
  Where appropriate for industry, commerce and consumers

(Contd. on page 10)

(Contd. of page 9)

* Annex: Exposure scenario 1

- **Short title of the exposure scenario** Manufacture of substance
- **Sector of Use**
  SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
  SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
  SU9 Manufacture of fine chemicals
  SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- **Process category**
  PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
  PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
  PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
  PROC4 Chemical production where opportunity for exposure arises
  PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
  PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
  PROC15 Use as laboratory reagent
- **Environmental release category**
  ERC1 Manufacture of the substance
  ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
- **Notes** Specific Environmental Release Category: ESVOC 1.1.v1
- **Description of the activities / processes covered in the Exposure Scenario**
  Manufacture of the substance or use as an intermediate, process chemical or extracting agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (ncluding marine vessel/barge, road/rail car and bulk container).

- **Conditions of use**
- **Duration and frequency** Covers daily exposures up to 8 hours (unless stated differently)
- **Environment**
  Annual site tonnage (tonnes/year): 3 300
  Continuous release.
  Emission Days (days/year): 100
  Fraction of EU tonnage used in region: 0.1
  Fraction of Regional tonnage used Locally: 1
  Maximum daily site tonnage (kg/d): 33 000
  Regional use tonnage (tonnes/year): 3 300
- **Physical parameters**
- **Physical state**
  Fluid
  Predominantly hydrophobic.
  Substance is complex UVCB.
- **Concentration of the substance in the mixture** Covers concentrations up to: 100%
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure**
  Local freshwater dilution factor: 10
  Local marine water dilution factor: 100
  Release fraction to air from process (initial release prior to RMM): 0.001
  Release fraction to soil from process (initial release prior to RMM): 0.0001
  Release fraction to wastewater from process (initial release prior to RMM): 0.00003
- **Other operational conditions affecting worker exposure**
  Assumes a good basic standard of occupational hygiene is implemented
  No exposure assessment presented for human health.

(Contd. on page 11)

(Contd. of page 10)

- ***Risk management measures***
  General measures (aspiration hazard):
  The risk phrase H304 (May be fatal if swallowed and enters the respiratory tract) is related to the aspiration potential, a non-quantifiable hazard determined by physicochemical properties (eg, viscosity) that may occur during ingestion and also when vomiting occurs. A DNEL can not be derived. Risks of physicochemical properties of substances can be controlled by implementing risk management measures. For substances classified with H304, the following measures should be followed to keep the aspiration hazard under control.
  Do not take it. If swallowed, seek medical advice immediately. DO NOT induce vomiting.
- ***Worker protection***
- ***Organisational protective measures***
  Do not apply industrial sludge to natural soils.
  Prevent discharge of undissolved substance to or recover from wastewater.
  Sludge should be incinerated, contained or reclaimed.
- ***Personal protective measures***
  For more information on "Personal protective equipment" see section 8 of the MSDS
- ***Environmental protection measures***
  Common practices vary across sites thus conservative process release estimates used.
  Risk from environmental exposure is driven by freshwater sediment.
- ***Air*** *Treat air emissions to provide a typical removal (or abatement?) efficiency of: 90%*
- ***Water***
  If discharging to domestic sewage treatment plant, no wastewater treatment required.
  When emptying into a domestic sewage treatment plant, wastewater treatment is necessary on site with an efficiency of: 0%
  No secondary wastewater treatment required.
  Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 0 %
  Assumed domestic sewage treatment plant flow: 10 000 m3/d
  Estimated substance removal from wastewater via domestic sewage treatment is: 91.7%
  Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal: 1 100 000 kg/day
  Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 91.7 %
- ***Disposal measures*** *During manufacturing no waste of the substance is generated.*

- ***Exposure estimation***
- ***Worker (oral)*** *Not applicable*
- ***Worker (dermal)*** *Not applicable*
- ***Worker (inhalation)*** *Not applicable*
- ***Environment***
  The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.

- ***Guidance for downstream users***
  Available hazard data do not support the need for a DNEL to be established for other health effects.
  Risk Management Measures are based on qualitative risk characterisation.
  Environment:
  Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
  Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
  Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
  Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

(Contd. on page 12)

(Contd. of page 11)

Maximum Risk Characterisation Ratio for Air Emissions [RCRair]: 0.000018
Maximum Risk Characterisation Ratio for Wastewater Emissions [RCRwater]: 0.03

(Contd. on page 13)

(Contd. of page 12)

* Annex: Exposure scenario 2

- **Short title of the exposure scenario** Distribution of substance
- **Sector of Use**
  SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
  SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
  SU9 Manufacture of fine chemicals
- **Process category**
  PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
  PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
  PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
  PROC4 Chemical production where opportunity for exposure arises
  PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
  PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
  PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
  PROC15 Use as laboratory reagent
- **Environmental release category**
  ERC1 Manufacture of the substance
  ERC2 Formulation into mixture
  ERC3 Formulation into solid matrix
  ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
  ERC5 Use at industrial site leading to inclusion into/onto article
  ERC6a Use of intermediate
  ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
  ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
  ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
  ERC7 Use of functional fluid at industrial site
- **Notes** Specific Environmental Release Category: ESVOC 1.1b.v1
- **Description of the activities / processes covered in the Exposure Scenario**
  Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities.

- **Conditions of use**
- **Duration and frequency** Covers daily exposures up to 8 hours (unless stated differently)
- **Environment**
  Annual site tonnage (tonnes/year): 1
  Continuous release.
  Emission Days (days/year): 20
  Fraction of EU tonnage used in region: 0.1
  Fraction of Regional tonnage used Locally: 0.002
  Maximum daily site tonnage (kg/d): 50
  Regional use tonnage (tonnes/year): 500
- **Physical parameters**
- **Physical state**
  Fluid
  Predominantly hydrophobic.
  Substance is complex UVCB.
- **Concentration of the substance in the mixture** Covers concentrations up to: 100%

(Contd. on page 14)

(Contd. of page 13)

- **Other operational conditions**
- **Other operational conditions affecting environmental exposure**
  Local freshwater dilution factor: 10
  Local marine water dilution factor: 100
  Release fraction to air from process (initial release prior to RMM): 0.0001
  Release fraction to soil from process (initial release prior to RMM): 0.00001
  Release fraction to wastewater from process (initial release prior to RMM): 0.000001
- **Other operational conditions affecting worker exposure**
  Assumes a good basic standard of occupational hygiene is implemented
  No exposure assessment presented for human health.

- **Risk management measures**
  General measures (aspiration hazard):
  The risk phrase H304 (May be fatal if swallowed and enters the respiratory tract) is related to the aspiration potential, a non-quantifiable hazard determined by physicochemical properties (eg, viscosity) that may occur during ingestion and also when vomiting occurs. A DNEL can not be derived. Risks of physicochemical properties of substances can be controlled by implementing risk management measures. For substances classified with H304, the following measures should be followed to keep the aspiration hazard under control.
  Do not take it. If swallowed, seek medical advice immediately. DO NOT induce vomiting.
- **Worker protection**
- **Organisational protective measures**
  Do not apply industrial sludge to natural soils.
  Prevent discharge of undissolved substance to or recover from wastewater.
  Sludge should be incinerated, contained or reclaimed.
- **Personal protective measures**
  For more information on "Personal protective equipment" see section 8 of the MSDS
- **Environmental protection measures**
  Common practices vary across sites thus conservative process release estimates used.
  Risk from environmental exposure is driven by freshwater.
- **Air** Treat air emissions to provide a typical removal (or abatement?) efficiency of: 90%
- **Water**
  When emptying into a domestic sewage treatment plant, wastewater treatment is necessary on site with an efficiency of: 0%
  No secondary wastewater treatment required.
  Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 0 %
  Assumed domestic sewage treatment plant flow: 2000 m3/d
  Estimated substance removal from wastewater via domestic sewage treatment is: 91.7%
  Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal: 78 000 kg/day
  Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 91.7 %
- **Disposal measures**
  Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
  Contaminated water to separate by separator and dispose off in line with administrative regulations.
  A used product should be recycled or used in other contexts, otherwise be handed over to an appropriate disposal site.

- **Exposure estimation**
- **Worker (oral)** Not applicable
- **Worker (dermal)** Not applicable
- **Worker (inhalation)** Not applicable

(Contd. on page 15)

(Contd. of page 14)

- ***Environment***
  The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.

- ***Guidance for downstream users***
  Available hazard data do not support the need for a DNEL to be established for other health effects.
  Risk Management Measures are based on qualitative risk characterisation.
  Environment:
  Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
  Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
  Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
  Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
  Maximum Risk Characterisation Ratio for Air Emissions [RCRair]: 0.0000029
  Maximum Risk Characterisation Ratio for Wastewater Emissions [RCRwater]: 0.00064

(Contd. on page 16)

(Contd. of page 15)

* Annex: Exposure scenario 3

- **Short title of the exposure scenario** Formulation and (re)packing of substances and mixtures
- **Sector of Use**
  SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
  SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- **Process category**
  PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
  PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
  PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
  PROC4 Chemical production where opportunity for exposure arises
  PROC5 Mixing or blending in batch processes
  PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
  PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
  PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
  PROC14 Tabletting, compression, extrusion, pelletisation, granulation
  PROC15 Use as laboratory reagent
- **Environmental release category** ERC2 Formulation into mixture
- **Notes** Specific Environmental Release Category: ESVOC 2.2.v1
- **Description of the activities / processes covered in the Exposure Scenario**
  Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

- **Conditions of use**
- **Duration and frequency** Covers daily exposures up to 8 hours (unless stated differently)
- **Environment**
  Annual site tonnage (tonnes/year): 370
  Continuous release.
  Emission Days (days/year): 100
  Fraction of EU tonnage used in region: 0.1
  Fraction of Regional tonnage used Locally: 1
  Maximum daily site tonnage (kg/d): 3 700
  Regional use tonnage (tonnes/year): 370
- **Physical parameters**
- **Physical state**
  Fluid
  Predominantly hydrophobic.
  Substance is complex UVCB.
- **Concentration of the substance in the mixture** Covers concentrations up to: 100%
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure**
  Local freshwater dilution factor: 10
  Local marine water dilution factor: 100
  Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): 0.0005
  Release fraction to soil from process (initial release prior to RMM): 0.0001
  Release fraction to wastewater from process (initial release prior to RMM): 0.00002
- **Other operational conditions affecting worker exposure**
  Assumes a good basic standard of occupational hygiene is implemented
  No exposure assessment presented for human health.

(Contd. on page 17)

(Contd. of page 16)

- ***Risk management measures***
  General measures (aspiration hazard):
  The risk phrase H304 (May be fatal if swallowed and enters the respiratory tract) is related to the aspiration potential, a non-quantifiable hazard determined by physicochemical properties (eg, viscosity) that may occur during ingestion and also when vomiting occurs. A DNEL can not be derived. Risks of physicochemical properties of substances can be controlled by implementing risk management measures. For substances classified with H304, the following measures should be followed to keep the aspiration hazard under control.
  Do not take it. If swallowed, seek medical advice immediately. DO NOT induce vomiting.
- ***Worker protection***
- ***Organisational protective measures***
  Do not apply industrial sludge to natural soils.
  Prevent discharge of undissolved substance to or recover from wastewater.
  Sludge should be incinerated, contained or reclaimed.
- ***Personal protective measures***
  For more information on "Personal protective equipment" see section 8 of the MSDS
- ***Environmental protection measures***
  Common practices vary across sites thus conservative process release estimates used.
  Risk from environmental exposure is driven by freshwater sediment.
- ***Air*** *Treat air emissions to provide a typical removal (or abatement?) efficiency of: 0%*
- ***Water***
  When emptying into a domestic sewage treatment plant, wastewater treatment is necessary on site with an efficiency of: 0%
  No secondary wastewater treatment required.
  Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 0 %
  Assumed domestic sewage treatment plant flow: 2000 m3/d
  Estimated substance removal from wastewater via domestic sewage treatment is: 91.7%
  Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal: 330 000 kg/day
  Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 91.7 %
- ***Disposal measures***
  Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
  Contaminated water to separate by separator and dispose off in line with administrative regulations.
  A used product should be recycled or used in other contexts, otherwise be handed over to an appropriate disposal site.

- ***Exposure estimation***
- ***Worker (oral)*** *Not applicable*
- ***Worker (dermal)*** *Not applicable*
- ***Worker (inhalation)*** *Not applicable*
- ***Environment***
  The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.

- ***Guidance for downstream users***
  Available hazard data do not support the need for a DNEL to be established for other health effects.
  Risk Management Measures are based on qualitative risk characterisation.
  Environment:
  Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
  Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
  Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

(Contd. on page 18)

(Contd. of page 17)

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
Maximum Risk Characterisation Ratio for Air Emissions [RCRair]: 0.000083323
Maximum Risk Characterisation Ratio for Wastewater Emissions [RCRwater]: 0.011440915

(Contd. on page 19)

(Contd. of page 18)

* Annex: Exposure scenario 4

- **Short title of the exposure scenario**
  Use in laboratories
  Industrial
- **Sector of Use** SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
- **Process category**
  PROC10 Roller application or brushing
  PROC15 Use as laboratory reagent
- **Environmental release category**
  ERC2 Formulation into mixture
  ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
- **Description of the activities / processes covered in the Exposure Scenario**
  Use of the substance within laboratory settings, including material transfers and equipment cleaning.

- **Conditions of use**
- **Duration and frequency** Covers daily exposures up to 8 hours (unless stated differently)
- **Environment**
  Annual site tonnage (tonnes/year): 0.01
  Continuous release.
  Emission Days (days/year): 20
  Fraction of EU tonnage used in region: 0.1
  Fraction of Regional tonnage used Locally: 1
  Maximum daily site tonnage (kg/d): 0.5
  Regional use tonnage (tonnes/year): 0.01
- **Physical parameters**
- **Physical state**
  Fluid
  Predominantly hydrophobic.
  Substance is complex UVCB.
- **Concentration of the substance in the mixture** Covers concentrations up to: 100%
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure**
  Local freshwater dilution factor: 10
  Local marine water dilution factor: 100
  Release fraction to air from process (initial release prior to RMM): 0.025
  Release fraction to soil from process (initial release prior to RMM): 0.0001
  Release fraction to wastewater from process (initial release prior to RMM): 0.02
- **Other operational conditions affecting worker exposure**
  Assumes a good basic standard of occupational hygiene is implemented
  No exposure assessment presented for human health.

- **Risk management measures**
  General measures (aspiration hazard):
  The risk phrase H304 (May be fatal if swallowed and enters the respiratory tract) is related to the aspiration potential, a non-quantifiable hazard determined by physicochemical properties (eg, viscosity) that may occur during ingestion and also when vomiting occurs. A DNEL can not be derived. Risks of physicochemical properties of substances can be controlled by implementing risk management measures. For substances classified with H304, the following measures should be followed to keep the aspiration hazard under control.
  Do not take it. If swallowed, seek medical advice immediately. DO NOT induce vomiting.
- **Worker protection**
- **Organisational protective measures**
  Do not apply industrial sludge to natural soils.
  Prevent discharge of undissolved substance to or recover from wastewater.

(Contd. on page 20)

(Contd. of page 19)

Sludge should be incinerated, contained or reclaimed.

- ***Personal protective measures***
  For more information on "Personal protective equipment" see section 8 of the MSDS
- ***Environmental protection measures***
  Common practices vary across sites thus conservative process release estimates used.
  Risk from environmental exposure is driven by freshwater sediment.
- ***Air*** *Treat air emissions to provide a typical removal (or abatement?) efficiency of: 0%*
- ***Water***
  When emptying into a domestic sewage treatment plant, wastewater treatment is necessary on site with an efficiency of: 0%
  No secondary wastewater treatment required.
  Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 0 %
  Assumed domestic sewage treatment plant flow: 2000 m3/d
  Estimated substance removal from wastewater via domestic sewage treatment is: 91.7%
  Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal: 330 kg/day
  Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 91.7 %
- ***Disposal measures***
  Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
  Contaminated water to separate by separator and dispose off in line with administrative regulations.
  A used product should be recycled or used in other contexts, otherwise be handed over to an appropriate disposal site.

- ***Exposure estimation***
- ***Worker (oral)*** *Not applicable*
- ***Worker (dermal)*** *Not applicable*
- ***Worker (inhalation)*** *Not applicable*
- ***Environment***
  The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.

- ***Guidance for downstream users***
  Available hazard data do not support the need for a DNEL to be established for other health effects.
  Risk Management Measures are based on qualitative risk characterisation.
  Environment:
  Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
  Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
  Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
  Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
  Maximum Risk Characterisation Ratio for Air Emissions [RCRair]: 0.000003
  Maximum Risk Characterisation Ratio for Wastewater Emissions [RCRwater]: 0.0015

(Contd. on page 21)

(Contd. of page 20)

* Annex: Exposure scenario 5

- **Short title of the exposure scenario**
  Use in laboratories
  Professional
- **Sector of Use**
  SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- **Process category**
  PROC10 Roller application or brushing
  PROC15 Use as laboratory reagent
- **Environmental release category**
  ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
- **Notes** Specific Environmental Release Category: ESVOC 8.17.v1
- **Description of the activities / processes covered in the Exposure Scenario**
  Use of small quantities within laboratory settings, including material transfers and equipment cleaning.

- **Conditions of use**
- **Duration and frequency** Covers daily exposures up to 8 hours (unless stated differently)
- **Environment**
  Annual site tonnage (tonnes/year): 0.000005
  Continuous release.
  Emission Days (days/year): 365
  Fraction of EU tonnage used in region: 0.1
  Fraction of Regional tonnage used Locally: 1
  Maximum daily site tonnage (kg/d): 0.000014
  Regional use tonnage (tonnes/year): 0.01
- **Physical parameters**
- **Physical state**
  Fluid
  Predominantly hydrophobic.
  Substance is complex UVCB.
- **Concentration of the substance in the mixture** Covers concentrations up to: 100%
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure**
  Local freshwater dilution factor: 10
  Local marine water dilution factor: 100
  Release fraction to air from process (initial release prior to RMM): 0.5
  Release fraction to soil from process (initial release prior to RMM): 0
  Release fraction to wastewater from process (initial release prior to RMM): 0.5
- **Other operational conditions affecting worker exposure**
  Assumes a good basic standard of occupational hygiene is implemented
  No exposure assessment presented for human health.

- **Risk management measures**
  General measures (aspiration hazard):
  The risk phrase H304 (May be fatal if swallowed and enters the respiratory tract) is related to the aspiration potential, a non-quantifiable hazard determined by physicochemical properties (eg, viscosity) that may occur during ingestion and also when vomiting occurs. A DNEL can not be derived. Risks of physicochemical properties of substances can be controlled by implementing risk management measures. For substances classified with H304, the following measures should be followed to keep the aspiration hazard under control.
  Do not take it. If swallowed, seek medical advice immediately. DO NOT induce vomiting.
- **Worker protection**
- **Organisational protective measures**
  Do not apply industrial sludge to natural soils.

(Contd. on page 22)

(Contd. of page 21)

Prevent discharge of undissolved substance to or recover from wastewater.
Sludge should be incinerated, contained or reclaimed.

- ***Personal protective measures***
  For more information on "Personal protective equipment" see section 8 of the MSDS
- ***Environmental protection measures***
  Common practices vary across sites thus conservative process release estimates used.
  Risk from environmental exposure is driven by freshwater.
- ***Air*** *Treat air emissions to provide a typical removal (or abatement?) efficiency of: 0%*
- ***Water***
  When emptying into a domestic sewage treatment plant, wastewater treatment is necessary on site with an efficiency of: 0%
  No secondary wastewater treatment required.
  Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 0 %
  Assumed domestic sewage treatment plant flow: 2000 m3/d
  Estimated substance removal from wastewater via domestic sewage treatment is: 91.7%
  Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal: 0.021 kg/day
  Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 91.7 %
- ***Disposal measures***
  Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
  Contaminated water to separate by separator and dispose off in line with administrative regulations.
  A used product should be recycled or used in other contexts, otherwise be handed over to an appropriate disposal site.

- ***Exposure estimation***
- ***Worker (oral)*** *Not applicable*
- ***Worker (dermal)*** *Not applicable*
- ***Worker (inhalation)*** *Not applicable*
- ***Environment***
  The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.

- ***Guidance for downstream users***
  Available hazard data do not support the need for a DNEL to be established for other health effects.
  Risk Management Measures are based on qualitative risk characterisation.
  Environment:
  Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
  Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
  Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
  Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
  Maximum Risk Characterisation Ratio for Air Emissions [RCRair]: 0.0000039
  Maximum Risk Characterisation Ratio for Wastewater Emissions [RCRwater]: 0.00064