



H304 May be fatal if swallowed and enters airways
 H315 Causes skin irritation
 H317 May cause an allergic skin reaction
 H318 Causes serious eye damage

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
 P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 Wash hands and exposed skin thoroughly after handling.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
 P332+P313 If skin irritation occurs: Get medical advice/attention.
 P333+P313 If skin irritation or a rash occurs: Get medical advice/attention.
 P362+P364 Take off contaminated clothing and wash it before reuse.
 P370+P378 In case of fire: Use foam/CO2 to extinguish.

Storage

P403+P235 Store in a well ventilated place. Keep cool.
 P405 Store locked up.

Disposal

P501 Dispose of contents/container to local, state, and federal regulations

SECTION 3: Composition/information on ingredients

Mixtures

Hazardous components

Component	Concentration
D-LIMONENE (CAS no.: 5989-27-5)	95 %
CLASSIFICATIONS: Flammable liquids (chapter 2.6), Cat. 3; Skin corrosion/irritation (chapter 3.2), Cat. 2; Sensitization, skin (chapter 3.4), Cat. 1; Aspiration hazard (chapter 3.10), Cat. 1; Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 1; Hazardous to the aquatic environment - long-term hazard (chapter 4.1), Cat. 1. HAZARDS: No data available.	
Nonionic Surfactant (CAS no.: 9016-45-9)	< 5 %
CLASSIFICATIONS: Acute toxicity, oral (chapter 3.1), Cat. 4; Acute toxicity, inhalation (chapter 3.1), Cat. 4; Eye damage/irritation (chapter 3.3), Cat. 1. HAZARDS: H302+H332 - Harmful if swallowed or if inhaled; H318 - Causes serious eye damage.	
Component 3 (trade secret)	< 5 %
CLASSIFICATIONS: Eye damage/irritation (chapter 3.3), Cat. 1; Skin corrosion/irritation (chapter 3.2), Cat. 2. HAZARDS: No data available.	
Mixed Surfactant...Trade Secret	< 5 %
CLASSIFICATIONS: No data available. HAZARDS: No data available.	

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled	Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
In case of skin contact	Wash off with soap and plenty of water. Consult a physician.
In case of eye contact	Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
If swallowed	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Personal protective equipment for first-aid responders
See Section 8 for exposure and PPE recommendations

Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11 Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Indication of immediate medical attention and special treatment needed, if necessary

No data available.

SECTION 5: Fire-fighting measures

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Do not use direct water stream. May spread fire.

Specific hazards arising from the chemical

Carbon oxides.
During fire, gases hazardous to health may be formed.

Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

Environmental precautions

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Use water spray to reduce vapors or divert vapor cloud drift. Prevent product from entering drains. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

Reference to other sections

For disposal see section 13.

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

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Specific end use(s)

Automotive vehicle cleaner

SECTION 8: Exposure controls/personal protection**Control parameters****CAS: (not specified)**

Nonionic Surfactant

10 mg/m³ TWA

Poly(ethylene oxide)

10 mg/m³ TWA

CAS: 5989-27-5

D-LIMONENE

USA. ACGIH Threshold Limit Values

(TLV): 20.000000 ppm TWA

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Individual protection measures, such as personal protective equipment (PPE)**Pictograms****Eye/face protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 480 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 31 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Environmental exposure controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the



environment must be avoided.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance/form (physical state, color, etc.)	Clear, free-flowing orange liquid
Odor	orange/citrus
Odor threshold	No data available.
pH	9.8
Melting point/freezing point	-9 C (20 F) (FORMS SLURRY)
Initial boiling point and boiling range	96-176 C (195-350 F)
Flash point	94C (201.2F)
Evaporation rate	No data available.
Flammability (solid, gas)	No data available.
Upper/lower flammability limits	No data available.
Vapor pressure	4.5 (@20 DEG. C.)
Vapor density	No data available.
Relative density	0.80-1.2 (@20 DEG. C.)
Solubility(ies)	Miscible
Partition coefficient: n-octanol/water	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Viscosity	No data available.
Explosive properties	No data available.
Oxidizing properties	No data available.

SECTION 10: Stability and reactivity

Reactivity

Product is nonreactive when used and stored as directed.

Chemical stability

Product is stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous Polymerization will not occur

Conditions to avoid

Heat, flame, and sparks

Incompatible materials

Strong oxidizing agents

Hazardous decomposition products

No data available.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

D-LIMONENE

LD50 Oral - Rat - 4400 mg/kg

Remarks: Behavioral: Change in motor activity (specific assay). Respiratory disorder Skin and Appendages: Other:

Hair.

Citation: Sigma Aldrich rev. date: 12/07/2015

D-LIMONENE

LD50 Eyes - Rabbit - >5000 mg/kg

Citation: Sigma Aldrich rev. date: 12/07/2015

Nonionic Surfactant

LC50 Inhalation - Rat - 1.15

Remarks: Typical for this family of materials

Nonionic Surfactant

LD50 Skin - Rabbit - 2000-2991 mg/kg

Remarks: Prolonged skin contact is unlikely tlt in absorption of harmful amounts

Nonionic Surfactant

LD50 Oral - Rat - 960-3980 mg/kg

Remarks: Typical for this family of materials

Nonionic Surfactant

LD50 Oral - Rat - 7200 mg/kg

Nonionic Surfactant

LD50 Skin - Rabbit - >2000mg/kg

Nonionic Surfactant

LD50 Skin - Rabbit - >2g/kg

Remarks: Prolonged skin contact is unlikely tlt in absorption of harmful amounts

Skin corrosion/irritation

No data available.

Serious eye damage/irritation

D-LIMONENE

OECD test guideline 405 Eyes - Rabbit

Result: No eye irritation

Citation: Sigma Aldrich rev. date: 12/07/2015

Respiratory or skin sensitization

D-LIMONENE

OECD test guideline 429 - Mouse

Result: May cause sensitisation by skin contact.

Citation: Sigma Aldrich rev. date: 12/07/2015



Germ cell mutagenicity

No data available.

Carcinogenicity

D-LIMONENE

RTECS Oral - Rat

Result: Tumorigenic: Carcinogenic by RTECS criteria. Kidney, Ureter, Bladder: Kidney tumors. Tumorigenic Effects: Testicular tumors.

Carcinogenicity - Mouse - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Gastrointestinal: Tumors.

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (D-Limonene)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Citation: Sigma Aldrich rev. date: 12/07/2015

Reproductive toxicity

No data available.

Summary of evaluation of the CMR properties

No data available.

STOT-single exposure

No data available.

STOT-repeated exposure

No data available.

Aspiration hazard

No data available.

Additional information

D-LIMONENE

Result: Liver - Irregularities - Based on Human Evidence

Citation: Sigma Aldrich rev. date: 12/07/2015

SECTION 12: Ecological information

Toxicity

D-LIMONENE

LC50 - Pimephales promelas (fathead minnow) - 0.72 ml/l - 96hr

Citation: Sigma Aldrich rev. date: 12/07/2015

D-LIMONENE

LC50 - Daphnia magna (water flea) - 0.36 ml/l - 48hr

Citation: Sigma Aldrich rev. date: 12/07/2015

D-LIMONENE

LC50 - Bacteria - 3.94 mg/l

Citation: Sigma Aldrich rev. date: 12/07/2015

Nonionic Surfactant

LC50 - Pimephales promelas (fathead minnow) - 3.8-6.2 mg/l - 96hr

Remarks: For this family of materials

Nonionic Surfactant

LC50 - Daphnia magna (water flea) - 9.3-21.4 mg/l - 48hr

Remarks: For this family of materials

Nonionic Surfactant

EC50 - Algea - \geq 230mg/kg - 72hr

Nonionic Surfactant

EC50 - Daphnia magna (water flea) - \geq 1000mg/kg - 48hr

Nonionic Surfactant

LC50 - Fish - \geq 1000mg/kg - 96hr

Nonionic Surfactant

EC50 - Algea - $<$ 10mg/l - 72hrs

Nonionic Surfactant

LC50 - Fish - $<$ 10mg/l - 96hr

Nonionic Surfactant

LC50 - Crustacea - $<$ 10mg/l - 96hr

Persistence and degradability

D-LIMONENE

OECD test guideline 301B

Result: Readily biodegradable

Citation: Sigma Aldrich rev. date: 12/07/2015

Nonionic Surfactant

- 2.09-2.25 mg/kg Chemical Oxygen Demand - 28days

Nonionic Surfactant

- 2.15-2.25 mg/kg Theoretical Oxygen Demand - 28days

Bioaccumulative potential

Nonionic Surfactant

- Bioconcentration factor (BCF): 5.9 - 48 Fish. Estimated.

Nonionic Surfactant

- Partition coefficient: n-octanol/water(log Pow): 2.1 - 3.4 Calculated.



Mobility in soil

No data available.

Results of PBT and vPvB assessment

No data available.

SECTION 13: Disposal considerations

Disposal of the product

Dispose of product in accordance with local, state, and federal regulations.

Disposal of contaminated packaging

Dispose of as unused product.

Waste treatment

No data available.

Sewage disposal

Do not dispose of product in sewers.

Other disposal recommendations

No data available.

SECTION 14: Transport information

UN Number	2319
UN Proper Shipping Name	Terpene Hydrocarbons, n.o.s.,
Transport hazard class(es)	3
Packing group	II

Environmental hazards

Flammable

Special precautions for user

May be reclassified as a COMBUSTIBLE LIQUID when offered for transportation by ground in the US in containers up to 119 gallons.

May also be reclassified as a CONSUMER COMMODITY ORM-D when shipped by vessel in the US in containers not exceeding 1.3 gallons.

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

SARA 311/312 Hazards

D-LIMONENE cas: 5989-27-5...Fire hazard, acute health hazard, chronic health hazard

Nonionic Surfactant: yes

D-LIMONENE cas: 5989-27-5...Fire hazard, acute health hazard, chronic health hazard



NP-9

CAS: 9016-45-9: Acute Health Hazard

Pennsylvania Right To Know Components

D-LIMONENE cas: 5989-27-5

1643-20-5

Laurylamine oxide

30 - 50 %

New Jersey Right To Know Components

D-LIMONENE cas: 5989-27-5

1643-20-5

Laurylamine oxide

30 - 50 %

SECTION 16: Other information

Revision Date:

10/3/2016

Other Information:

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Party Responsible for the Preparation of This Document

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

North America GHS US 2012