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----------ISO 9001: 2015----------

MATERIAL SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking
1.1 Product identifiers
Linalool
Code L 1458

SECTION 2: Hazards identification
2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Skin irritation (Category 2), H315
Eye irritation (Category 2), H319
Skin sensitisation (Category 1), H317
For the full text of the H-Statements mentioned in this Section, see Section 16.
2.2 Label elements
Labelling according Regulation (EC) No 1272/2008
Pictogram
Signal word Warning
Hazard statement(s)
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
Precautionary statement(s)
P280 Wear protective gloves.
P302 + P352 IF ON SKIN: Wash with plenty of 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.
Supplemental Hazard Statements
none
2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients
3.1 Substances
Synonyms : (±)-3,7-Dimethyl-3-hydroxy-1,6-octadiene
(±)-3,7-Dimethyl-1,6-octadien-3-ol
Formula : C10H18O
Molecular weight : 154,25 g/mol
CAS-No. : 78-70-6
EC-No. : 201-134-4

Component	Classification	Concentration
Linalool	Skin Irrit. 2; Eye Irrit. 2; Skin Sens. 1; H315, H319, H317	<= 100 %

SECTION 4: First aid measures
4.1 Description of first aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures
5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media
Do NOT use water jet.
5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.
5.4 Further information
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures
6.1 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. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.
6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.
6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage
7.1 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.
7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Store in cool place.
7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection
8.1 Control parameters
Components with workplace control parameters
8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment
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.
The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

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: 0,2 mm
Break through time: 76 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, 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, 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 fullface respirator with multi-purpose 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).
Control of environmental exposure
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

9.1 Information on basic physical and chemical properties

a) Appearance	Form: clear, liquid Colour: colourless
b) Odour	pleasantfloral
c) Odour Threshold	No data available
d) pH	4,5 at 1,45 g/l at 25 °C
e) Melting point/freezing point	Melting point: < -100 °C Freezing point: > -74 °C at ca.993 hPa - OECD Test Guideline 102
f) Initial boiling point and boiling range	194 - 197 °C at 960 hPa - lit.
g) Flash point	ca.77,2 °C - Pensky-Martens closed cup - ISO 271981 °C - closed cup - DIN 51758
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 5,2 %(V) Lower explosion limit: 0,9 %(V)
k) Vapour pressure	0,27 hPa at 25 °C - OECD Test Guideline 104
l) Vapour density	No data available
m) Relative density	0,87 g/cm3 at 25 °C - lit.
n) Water solubility	slightly soluble
o) Partition coefficient: n-octanol/water	log Pow: 2,84 at 25 °C - OECD Test Guideline 107 - Bioaccumulation is not expected.log Pow: 2,7 at 25 °C - OECD Test Guideline 107 - Bioaccumulation is not expected.
p) Auto-ignition temperature	No data available
q) Decomposition temperature	ca.> 200 °C - Distillable in an undecomposed state at normal pressure.
r) Viscosity	No data available
s) Explosive properties	No data available

t) Oxidizing properties No data available
9.2 Other safety information
Surface tension 8,3 mN/m at 20 °C

SECTION 10: Stability and reactivity
10.1 Reactivity
No data available
10.2 Chemical stability
Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions
No data available
10.4 Conditions to avoid
Heat, flames and sparks.
10.5 Incompatible materials
Strong oxidizing agents
10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information
11.1 Information on toxicological effects
Acute toxicity
LD50 Oral - Rat - male and female - 2.790 mg/kg
(OECD Test Guideline 401)
LD50 Oral - Mouse - male and female - 2.200 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Mouse - female - 4 h - > 5 mg/l
Remarks: (ECHA)
LD50 Dermal - Rabbit - 5.610 mg/kg
(OECD Test Guideline 402)
Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 4 h
(OECD Test Guideline 404)
Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
(OECD Test Guideline 405)
Respiratory or skin sensitisation
Local lymph node assay (LLNA) - Mouse
Result: May cause sensitisation by skin contact.
(OECD Test Guideline 429)
Germ cell mutagenicity
Ames test
Salmonella typhimurium
Result: negative
In vitro mammalian cell gene mutation test
mouse lymphoma cells
Result: negative
Mutagenicity (mammal cell test): chromosome aberration.
Chinese hamster ovary cells
Result: negative
OECD Test Guideline 474
Mouse - male and female
Result: negative
OECD Test Guideline 474
Mouse - male and female - Red blood cells (erythrocytes)
Result: negative
Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available

Additional Information
Repeated dose toxicity - Rat - male and female - Oral - 28 Days - No observed adverse effect level - 117 mg/kg
Repeated dose toxicity - Rat - male and female - Dermal - 91 Days - No observed adverse effect level - 250 mg/kg
RTECS: RG5775000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information
12.1 Toxicity
Toxicity to fish static test LC50 - Oncorhynchus mykiss (rainbow trout) - 27,8 mg/l - 96 h
(OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Daphnia magna (Water flea) - 59 mg/l - 48 h
(OECD Test Guideline 202)
Toxicity to algae static test EC50 - Desmodesmus subspicatus (green algae) - 156,7 mg/l - 96 h
(DIN 38412)
static test EC10 - Desmodesmus subspicatus (green algae) - 54,3 mg/l - 96 h
(DIN 38412)
Toxicity to bacteria static test EC50 - activated sludge - > 100 mg/l - 30 h
(OECD Test Guideline 209)
12.2 Persistence and degradability
Biodegradability aerobic - Exposure time 28 d
Result: 64,2 % - Readily biodegradable.
(OECD Test Guideline 301D)
12.3 Bioaccumulative potential
No data available
12.4 Mobility in soil
No data available
12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
12.6 Other adverse effects
Harmful to aquatic life.
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations
13.1 Waste treatment methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.
Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information
14.1 UN number
ADR/RID: - IMDG: - IATA: -
14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods
14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -
14.4 Packaging group
ADR/RID: - IMDG: - IATA: -
14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no
14.6 Special precautions for user
No data available

SECTION 15: Regulatory information
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)
:
15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out

Section 16: Other Information
This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.