

SAFETY DATA SHEET

Version 4.8
 Revision Date 04/19/2017
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name	: Citral		
Product Number	: C83007		
Brand	: Aldrich		
Product Use	: For laboratory research purposes.		
Supplier	: Sigma-Aldrich Canada Co. 2149 Winston Park Drive OAKVILLE ON L6H 6J8 CANADA	Manufacturer	: Sigma-Aldrich Corporation 3050 Spruce St. St. Louis, Missouri 63103 USA
Telephone	: +1 9058299500		
Fax	: +1 9058299292		
Emergency Phone # (For both supplier and manufacturer)	: +1-703-527-3887 (CHEMTREC)		
Preparation Information	: Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956		

2. HAZARDS IDENTIFICATION

Emergency Overview

WHMIS Classification

D2B	Toxic Material Causing Other Toxic Effects	Moderate skin irritant Skin sensitiser
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GHS Classification

Skin corrosion/irritation (Category 2)
 Skin sensitisation (Category 1)
 Acute aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram



Signal word: Warning

Hazard statement(s)

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H401	Toxic to aquatic life.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P501	Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard: 2
Flammability: 1
Physical hazards: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Geranial and neral mixture
3,7-Dimethyl-2,6-octadienal

Formula : C₁₀H₁₆O
Molecular weight : 152.23 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Citral			
5392-40-5	226-394-6	605-019-00-3	<=100%

4. FIRST AID MEASURES**General advice**

Move out of dangerous area. 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

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products**Explosion data - sensitivity to mechanical impact**

No data available

Explosion data - sensitivity to static discharge

No data available

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

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.

Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Citral	5392-40-5			Canada. British Columbia OEL
Remarks	No British Columbia exposure limit at this time			
				Canada. British Columbia OEL
	No British Columbia exposure limit at this time			
		TWA	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		TWA	5 ppm	USA. ACGIH Threshold Limit Values (TLV)

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face 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).

Hand 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: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, 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.

Eye 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 and 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.

Hygiene measures

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

Specific engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	clear, liquid
Colour	light yellow

Safety data

pH	No data available
Melting point/freezing point	Melting point/range: < -20 °C (< -4 °F) at 1,013 hPa (760 mmHg)
Boiling point	229 °C (444 °F) - lit.
Flash point	95 °C (203 °F) - closed cup
Ignition temperature	No data available
Auto-ignition temperature	225 °C (437 °F) at 1,013 hPa (760 mmHg)
Lower explosion limit	4.3 %(V)
Upper explosion limit	9.9 %(V)
Vapour pressure	< 1.3 hPa (< 1.0 mmHg) at 100 °C (212 °F) - OECD Test Guideline 104
Density	0.888 g/cm ³ at 25 °C (77 °F) - lit.
Water solubility	0.42 g/l at 25 °C (77 °F) - OECD Test Guideline 105
Partition coefficient: n-octanol/water	log Pow: ca.2.9 at 25 °C (77 °F) - OECD Test Guideline 117
Relative vapour density	5.26 - (Air = 1.0)
Odour	No data available
Odour Threshold	No data available
Evaporation rate	No data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

No data available

Materials to avoid

Strong oxidizing agents, Strong acids, Strong bases

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity**Oral LD50**

LD50 Oral - Rat - male and female - 6,800 mg/kg

Inhalation LC50

No data available

Dermal LD50

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

Other information on acute toxicity

No data available

Skin corrosion/irritation

Skin - Rabbit - Irritating to skin.

Serious eye damage/eye irritation

Eyes - Rabbit - Mild eye irritation - OECD Test Guideline 405

Respiratory or skin sensitisation

Mouse - May cause sensitisation by skin contact. - OECD Test Guideline 429

Germ cell mutagenicity

Genotoxicity in vitro - In vitro mammalian cell gene mutation test - Chinese hamster ovary cells - with and without metabolic activation - negative

Genotoxicity in vivo - Mouse - male and female - Oral - 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

Teratogenicity

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure

Cough, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects

No data available

Additional Information

Repeated dose toxicity - Rat - female - Oral - Lowest observed adverse effect level - 335 mg/kg

Repeated dose toxicity - Rat - male - Oral - Lowest observed adverse effect level - 345 mg/kg

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	static test LC50 - Leuciscus idus (Golden orfe) - 6.78 mg/l - 96 h Method: DIN 38412
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 6.8 mg/l - 48 h
Toxicity to algae	static test EC50 - Desmodesmus subspicatus (Scenedesmus subspicatus) - 103.8 mg/l - 72 h

Persistence and degradability

Biodegradability	aerobic Result: 85 - 95 % - Readily biodegradable. Method: OECD Test Guideline 301C
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Bioaccumulative potential

No data available

Mobility in soil

No data available

PBT and vPvB assessment

No data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Product

Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

WHMIS Classification

D2B	Toxic Material Causing Other Toxic Effects	Moderate skin irritant Skin sensitiser
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This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

Further information

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