

## SAFETY DATA SHEET

Creation Date 03-May-2012

Revision Date 27-March-2024

Revision Number 4

### 1. Identification

**Product Name** Citral, cis + trans

**Cat No. :** L05460

**CAS-No** 5392-40-5

**Synonyms** Geranial; 3,7-Dimethyl-2,6-octadienal; Neral

**Recommended Use** Laboratory chemicals.

**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

##### **Importer/Distributor**

Fisher Scientific  
112 Colonnade Road,  
Ottawa, ON K2E 7L6,  
Canada  
Tel: 1-800-234-7437

##### **Emergency Telephone Number**

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11

Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99

**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

|  |            |
|--|------------|
| <b>Skin Corrosion/Irritation</b>         | Category 2 |
| <b>Serious Eye Damage/Eye Irritation</b> | Category 2 |
| <b>Skin Sensitization</b>                | Category 1 |

#### Label Elements

##### **Signal Word**

Warning

##### **Hazard Statements**

Causes skin irritation

May cause an allergic skin reaction

Causes serious eye irritation

**Precautionary Statements****Prevention**

Avoid breathing dust/fume/gas/mist/vapors/spray  
Wash face, hands and any exposed skin thoroughly after handling  
Contaminated work clothing should not be allowed out of the workplace  
Wear protective gloves/protective clothing/eye protection/face protection

**Response**

IF ON SKIN: Wash with plenty of soap and water  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
If skin irritation or rash occurs: Get medical advice/attention  
If eye irritation persists: Get medical advice/attention  
Take off contaminated clothing and wash it before reuse

**Disposal**

Dispose of contents/container to an approved waste disposal plant

### 3. Composition/Information on Ingredients

| Component | CAS-No    | Weight % |
|-----------|-----------|----------|
| Citral    | 5392-40-5 | > 95     |

### 4. First-aid measures

|  |  |
|--|--|
| <b>General Advice</b>                  | If symptoms persist, call a physician.   |
| <b>Eye Contact</b>                     | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.  |
| <b>Skin Contact</b>                    | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.  |
| <b>Inhalation</b>                      | Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.   |
| <b>Ingestion</b>                       | Clean mouth with water and drink afterwards plenty of water.   |
| <b>Most important symptoms/effects</b> | May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting |
| <b>Notes to Physician</b>              | Treat symptomatically  |

### 5. Fire-fighting measures

|                                       |   |
|---------------------------------------|---|
| <b>Suitable Extinguishing Media</b>   | Water spray, carbon dioxide (CO <sub>2</sub> ), dry chemical, alcohol-resistant foam. |
| <b>Unsuitable Extinguishing Media</b> | No information available  |
| <b>Flash Point</b>                    | 101 °C / 213.8 °F   |

|   |                          |
|---|--------------------------|
| <b>Method -</b>                         | No information available |
| <b>Autoignition Temperature</b>         | No information available |
| <b>Explosion Limits</b>                 |                          |
| <b>Upper</b>                            | No data available        |
| <b>Lower</b>                            | No data available        |
| <b>Sensitivity to Mechanical Impact</b> | No information available |
| <b>Sensitivity to Static Discharge</b>  | No information available |

**Specific Hazards Arising from the Chemical**

Keep product and empty container away from heat and sources of ignition.

**Hazardous Combustion Products**

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**

**Health**  
2

**Flammability**  
1

**Instability**  
0

**Physical hazards**  
N/A

## 6. Accidental release measures

|                                  |   |
|----------------------------------|---|
| <b>Personal Precautions</b>      | Ensure adequate ventilation. Use personal protective equipment as required. |
| <b>Environmental Precautions</b> | Do not flush into surface water or sanitary sewer system.                   |

**Methods for Containment and Clean Up** Keep in suitable, closed containers for disposal. Soak up with inert absorbent material.

## 7. Handling and storage

|                 |   |
|-----------------|---|
| <b>Handling</b> | Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. |
| <b>Storage.</b> | Keep container tightly closed in a dry and well-ventilated place. Incompatible Materials. Strong acids. Strong bases. Oxidizing agent.                        |

## 8. Exposure controls / personal protection

**Exposure Guidelines**

| Component | Alberta | British Columbia | Ontario TWAEV      | Quebec | ACGIH TLV          | OSHA PEL | NIOSH |
|-----------|---------|------------------|--------------------|--------|--------------------|----------|-------|
| Citral    |         | Skin             | TWA: 5 ppm<br>Skin |        | TWA: 5 ppm<br>Skin |          |       |

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists

**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.  
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment**

**Eye Protection** Goggles

**Hand Protection**

Protective gloves

| Glove material | Breakthrough time                 | Glove thickness | Glove comments         |
|----------------|-----------------------------------|-----------------|------------------------|
| Viton (R)      | See manufacturers recommendations | -               | Splash protection only |

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

**Respiratory Protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387

When RPE is used a face piece Fit Test should be conducted

**Environmental exposure controls**

Prevent product from entering drains. Do not allow material to contaminate ground water system.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

## 9. Physical and chemical properties

|   |                              |
|---|------------------------------|
| <b>Physical State</b>                         | Liquid                       |
| <b>Appearance</b>                             | Yellow                       |
| <b>Odor</b>                                   | Fresh                        |
| <b>Odor Threshold</b>                         | No information available     |
| <b>pH</b>                                     | No information available     |
| <b>Melting Point/Range</b>                    | < -10 °C / < 14 °F           |
| <b>Boiling Point/Range</b>                    | 229 °C / 444.2 °F @ 760 mmHg |
| <b>Flash Point</b>                            | 101 °C / 213.8 °F            |
| <b>Evaporation Rate</b>                       | No information available     |
| <b>Flammability (solid,gas)</b>               | Not applicable               |
| <b>Flammability or explosive limits</b>       |                              |
| Upper   | No data available            |
| Lower   | No data available            |
| <b>Vapor Pressure</b>                         | 0.2 mmHg @ 200 °C            |
| <b>Vapor Density</b>                          | 5                            |
| <b>Specific Gravity</b>                       | 0.889                        |
| <b>Solubility</b>                             | No information available     |
| <b>Partition coefficient; n-octanol/water</b> | No data available            |
| <b>Autoignition Temperature</b>               | No information available     |
| <b>Decomposition Temperature</b>              | No information available     |
| <b>Viscosity</b>                              | No information available     |
| <b>Molecular Formula</b>                      | C10 H16 O                    |
| <b>Molecular Weight</b>                       | 152.24                       |

## 10. Stability and reactivity

|                            |  |
|----------------------------|--|
| <b>Reactive Hazard</b>     | None known, based on information available |
| <b>Stability</b>           | No information available.                  |
| <b>Conditions to Avoid</b> | Incompatible products.                     |

**Incompatible Materials** Strong acids, Strong bases, Oxidizing agent

**Hazardous Decomposition Products** Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

**Hazardous Polymerization** No information available.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

### Acute Toxicity

**Product Information** No acute toxicity information is available for this product

#### Component Information

| Component | LD50 Oral                 | LD50 Dermal                  | LC50 Inhalation |
|-----------|---------------------------|------------------------------|-----------------|
| Citral    | LD50 = 4960 mg/kg ( Rat ) | LD50 = 2250 mg/kg ( Rabbit ) | Not listed      |

**Toxicologically Synergistic** No information available

#### Products

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** Irritating to eyes and skin

**Sensitization** May cause sensitization by skin contact

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component | CAS-No    | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|-----------|-----------|------------|------------|------------|------------|------------|
| Citral    | 5392-40-5 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known

**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing:  
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

The product contains following substances which are hazardous for the environment. Contains a substance which is: Toxic to aquatic organisms.

| Component | Freshwater Algae  | Freshwater Fish | Microtox                | Water Flea                             |
|-----------|---|-----------------|-------------------------|--|
| Citral    | EC50: = 19 mg/L, 96h<br>(Desmodesmus subspicatus)<br>EC50: = 16 mg/L, 72h | Not listed      | EC50 = 2100 mg/L 30 min | EC50: = 7 mg/L, 48h<br>(Daphnia magna) |

|  |                         |  |  |  |
|--|-------------------------|--|--|--|
|  | (Desmodium subspicatus) |  |  |  |
|--|-------------------------|--|--|--|

**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Will likely be mobile in the environment due to its water solubility. Is not likely mobile in the environment due its low water solubility.

| Component | log Pow |
|-----------|---------|
| Citral    | 2.76    |

### 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

### 14. Transport information

**DOT** Not regulated  
**TDG** Not regulated  
**IATA** Not regulated  
**IMDG/IMO** Not regulated

### 15. Regulatory information

#### International Inventories

| Component | CAS-No    | DSL | NDSL | TSCA | TSCA Inventory notification - Active-Inactive | EINECS    | ELINCS | NLP |
|-----------|-----------|-----|------|------|---|-----------|--------|-----|
| Citral    | 5392-40-5 | X   | -    | X    | ACTIVE  | 226-394-6 | -      | -   |

| Component | CAS-No    | IECSC | KECL     | ENCS | ISHL | TCSI | AICS | NZIoC | PICCS |
|-----------|-----------|-------|----------|------|------|------|------|-------|-------|
| Citral    | 5392-40-5 | X     | KE-11579 | X    | X    | X    | X    | X     | X     |

#### Legend:

X - Listed '-' - Not Listed

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

#### Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

#### Other International Regulations

##### Authorisation/Restrictions according to EU REACH

| Component | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|-----------|---|---|---|
|           |   |   |   |

|        |   |  |   |
|--------|---|--|---|
| Citral | - | Use restricted. See item 75.<br>(see link for restriction details) | - |
|--------|---|--|---|

**REACH links**

<https://echa.europa.eu/substances-restricted-under-reach>

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

| Component | CAS-No    | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|-----------|-----------|----------|------------------------------|---------------------------|--|
| Citral    | 5392-40-5 | Listed   | Not applicable               | Not applicable            | Not applicable                             |

| Component | CAS-No    | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|-----------|-----------|---|--|----------------------------|------------------------------------|
| Citral    | 5392-40-5 | Not applicable  | Not applicable   | Not applicable             | Not applicable                     |

**16. Other information****Prepared By**

Product Safety Department  
Email: chem.techinfo@thermofisher.com  
www.thermofisher.com

**Creation Date**

03-May-2012

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27-March-2024

**Print Date**

27-March-2024

**Revision Summary**

New emergency telephone response service provider.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**