

# Material Safety Data Sheet



This material is hazardous according to criteria of NOHSC.

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail.

## 1. Identification of the substance/preparation and of the company/undertaking

**Product Name:** D-LIMONENE (UNTREATED GRADE)

**Synonyms:** d-Limonene (untreated grade); 4-Isopropenyl-1-methylcyclohexene; Limonene, d-; d-Limonene Technical; Cyclohexene, 1-methyl-4(1-methylethenyl)

**Supplier:** Orica Australia Pty Ltd

**ABN:** 004 117 828

**Street Address:** 1 Nicholson Street,  
Melbourne 3000  
Australia

**Telephone Number:** +61 3 9665 7111

**Facsimile:** +61 3 9665 7937

**Emergency Telephone:** 1 800 033 111 (ALL HOURS)

## 2. Composition/information on ingredients

**Product Description:** Flavouring; fragrance; solvent; wetting agent; resin manufacture.  
Clear colourless to yellow liquid with a strong citrus odour.

d-Limonene 5989-27-5	92-97%	R10, R38, R43, R50, R53
Impurities	to 100%	-

## 3. Hazards identification

**Risk Phrases:** Flammable. Irritating to skin. May cause sensitisation by skin contact. Very toxic to aquatic organisms. May cause long term adverse effects in the aquatic environment.

**Poisons Schedule:** None allocated.

## 4. First-aid measures

For advice, contact a Poisons Information Centre (Phone eg. Australia 131 126; New Zealand 0 800 764766) or a doctor.

**Inhalation:** Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

**Skin Contact:** If skin or hair contact occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with running water. If swelling, redness, blistering or irritation occurs seek medical assistance.

**Eye Contact:** If in eyes, wash out immediately with water. In all cases of eye contamination it is a sensible

**Product Name:** D-LIMONENE (UNTREATED GRADE)  
**Substance No:** 000033914301

**Issued:** 26/11/2002

**Version:** 1

# Material Safety Data Sheet



**Ingestion:** precaution to seek medical advice.  
Rinse mouth with water. If swallowed, give a glass of water to drink. If vomiting occurs give further water. Seek medical assistance.

**Notes to physician:** Treat symptomatically.

## 5. Fire-fighting measures

**Specific Hazards:** Flammable liquid. May form flammable vapour mixtures with air. Avoid all ignition sources. Flameproof equipment is necessary in all areas where this chemical is being used. Nearby equipment must be earthed. Vapour may travel a considerable distance to source of ignition and flash back. Electrical requirements for work area should be assessed according to AS3000.

**Fire-fighting advice:** Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. If safe to do so, remove containers from the path of fire. On burning will emit toxic fumes. Keep containers cool with water spray. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion.

**Suitable Extinguishing Media:** Foam, dry agent (carbon dioxide, dry chemical powder).

## 6. Accidental release measures

Shut off all possible sources of ignition. Wear protective equipment to prevent skin and eye contact. Avoid breathing in vapours. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers for disposal. If contamination of sewers or waterways has occurred advise local emergency services.

## 7. Handling and storage

**Handling advice:** Avoid skin and eye contact and breathing in vapour.

**Storage advice:** Store in a cool, dry, well ventilated place and out of direct sunlight. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for leaks or build up of pressure.

## 8. Exposure controls/personal protection

No value assigned for this specific material by the National Occupational Health and Safety Commission.

### Engineering Control Measures:

Use in well ventilated areas. If inhalation risk exists: Use with local exhaust ventilation or while wearing organic vapour respirator. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.

### Personal Protective Equipment:

Orica Personal Protection Guide No. 1, 1998: G - OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES, RESPIRATOR.

Wear overalls, safety glasses and impervious gloves. Use with adequate ventilation. If inhalation risk exists wear organic vapour respirator meeting the requirements of AS/NZS 1715 and AS/NZS1716. Always wash hands before smoking,

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**Substance No:** 000033914301

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# Material Safety Data Sheet



eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

## 9. Physical and chemical properties

<b>Physical state:</b>	Liquid
<b>Colour:</b>	Colourless to Yellow
<b>Odour:</b>	Strong Citrus
<b>Solubility:</b>	Sparingly soluble in water. Very soluble in 95% ethanol .
<b>Specific Gravity:</b>	0.84
<b>Relative Vapour Density (air=1):</b>	4.7
<b>Vapour Pressure (20 °C):</b>	0.19 kPa
<b>Flash Point (°C):</b>	48 (CC)
<b>Flammability Limits (%):</b>	0.7 - 6.1
<b>Autoignition Temperature (°C):</b>	237
<b>% Volatile by Weight:</b>	>92
<b>Solubility in water (g/L):</b>	0.0138 at 25°C
<b>Boiling Point/Range (°C):</b>	175.5 - 176
<b>Partition Coefficient:</b>	4.23

## 10. Stability and reactivity

**Stability:** Reacts with strong oxidising agents . Incompatible with oxidising agents, acidic clays and mineral acids . Combustible material that has been soaked with d-limonene may spontaneously combust. Peroxides formed by oxidation may present an explosion hazard if they become highly concentrated through distillation.

## 11. Toxicological information

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

- Ingestion:** Swallowing can result in nausea, vomiting, diarrhoea and abdominal pain.
- Eye contact:** May be an eye irritant.
- Skin contact:** Contact with skin will result in irritation. A skin sensitizer. Repeated or prolonged skin contact may lead to allergic contact dermatitis.
- Inhalation:** Material may be irritant to the mucous membranes of the respiratory tract (airways). Breathing in vapour can result in headaches, dizziness and possible nausea.

### Toxicological Data:

Oral LD50 (rat):	4,400 - 5,300 mg/kg
Dermal LD50 (rabbit):	>5,000 mg/kg

## 12. Ecotoxicological information

Avoid contaminating waterways.

### Environmental fate, persistence and degradation:

The material is partially biodegradable.

**Product Name:** D-LIMONENE (UNTREATED GRADE)  
**Substance No:** 000033914301

**Issued:** 26/11/2002

**Version:** 1

# Material Safety Data Sheet



## **Aquatic toxicity:**

Very toxic to aquatic organisms. Risk of bioaccumulation in an aquatic species is high. May cause long term adverse effects in the aquatic environment.

Log Octanol/Water Partition Coefficient: 4.23  
48hr LC50 (Daphnia magna): 0.577  
96hr LC50 (fathead minnow): 0.688 - 0.702

**Terrestrial toxicity:** Not expected to be harmful to terrestrial species.

## **13. Disposal considerations**

Refer to Waste Management Authority. Dispose of material through a licensed waste contractor. Advise flammable nature. Empty containers must be decontaminated and destroyed. Normally suitable for incineration by an approved agent.

## **14. Transport information**

### **Road and Rail Transport**

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail.

**UN No:** 2319  
**Class-primary** 3 Flammable Liquid  
**Packing Group:** III  
**Proper Shipping Name:** TERPENE HYDROCARBONS, N.O.S. (CONTAINS D-LIMONENE)

**Hazchem Code:** 3[Y]

### **Marine Transport**

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

This material is classified as a Marine Pollutant (P) according to the International Maritime Dangerous Goods Code.

**UN No:** 2319  
**Class-primary:** 3 Flammable Liquid  
**Packing Group:** III  
**Proper Shipping Name:** TERPENE HYDROCARBONS, N.O.S. (CONTAINS D-LIMONENE)

### **Air Transport**

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

**UN No:** 2319  
**Class-primary:** 3 Flammable Liquid  
**Packing Group:** III  
**Proper Shipping Name:** TERPENE HYDROCARBONS, N.O.S. (CONTAINS D-LIMONENE)

## **15. Regulatory information**

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**Substance No:** 000033914301  
**Issued:** 26/11/2002  
**Version:** 1

# Material Safety Data Sheet



**Classification:** This material is hazardous according to criteria of NOHSC.  
Xn: Harmful  
Xi: Irritant

**Risk Phrase(s):** R10: Flammable.  
R38: Irritating to skin.  
R43: May cause sensitisation by skin contact.  
R50: Very toxic to aquatic organisms.  
R53: May cause long term adverse effects in the aquatic environment.

**Safety Phrase(s):** S2: Keep out of the reach of children.  
S24: Avoid contact with skin.  
S36/37: Wear suitable protective clothing and gloves.  
S60: This material and its container must be disposed of as hazardous waste.  
S61: Avoid release to the environment. Refer to special instructions safety data sheets.

**Poisons Schedule:** None allocated.

This material is listed on the Australian Inventory of Chemical Substances (AICS).

## 16. Other information

**Reason(s) for Issue:**  
Change in Hazardous Substance Classification

This MSDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Orica Limited cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Orica representative or Orica Limited at the contact details on page 1.

Orica Limited's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.

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