SAFETY DATA SHEETS

1.Identification

1.1GHS Product identifier

Product name	citral

1.2Other means of identification

Product number	-
Other names	LEMSYN

1.3Recommended use of the chemical and restrictions on use

Identified uses	For industry use only. Food additives -> Flavoring Agents
Uses advised against	no data available

1.4Supplier's details

Company	Peak Supply Co
Address	5664 Cahuenga blvd. North Hollywood CA 91601
Telephone	(818) 308-6227

1.5Emergency phone number

Emergency phone number	
Service hours	Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2.Hazard identification

2.1Classification of the substance or mixture

Skin irritation, Category 2

Skin sensitization, Category 1

2.2GHS label elements, including precautionary statements

Pictogram(s)

Signal word	Warning
Hazard statement(s)	H315 Causes skin irritation
	H317 May cause an allergic skin reaction
Precautionary statement(s)	
Prevention	P264 Wash ... thoroughly after handling.
	P280 Wear protective gloves/protective clothing/eye protection/face protection.
	P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
	P272 Contaminated work clothing should not be allowed out of the workplace.
Response	P302+P352 IF ON SKIN: Wash with plenty of water/...
	P321 Specific treatment (see ... on this label).
	P332+P313 If skin irritation occurs: Get medical advice/attention.
	P362+P364 Take off contaminated clothing and wash it before reuse.
	P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
Storage	none
Disposal	P501 Dispose of contents/container to ...

2.3Other hazards which do not result in classification

none

3.Composition/information on ingredients

3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
citral	citral	5392-40-5	none	100%

4.First-aid measures

4.1Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Rinse and then wash skin with water and soap.

In case of eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

If swallowed

Rinse mouth.

4.2Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include contact dermatitis. ACUTE/CHRONIC HAZARDS: This compound is a local irritant. When heated to decomposition it emits acrid smoke and fumes.

4.3Indication of immediate medical attention and special treatment needed, if necessary

Absorption, Distribution and Excretion

Male Fischer F344 rats were given citral labelled with 14C at the C1 and C2 positions in a single oral dose of 5, 50, or 500 mg/kg bw or an intravenous dose of 5 mg/kg bw. After 72 h, the animals were sacrificed and tissues and excreta analyzed for radioactivity. Most radiolabel was excreted in the urine, feces, and expired air as 14CO2 or [14C]citral within 24 hr, regardless of the dose or route of administration. At the lowest oral dose, 83% of the radiolabel was recovered within 72 hr (51% in urine, 12% in feces, 17% as expired 14CO2, <1% as expired [14C]citral, and 3% in total tissues). Production of 14CO2 essentially ceased 12 hr after treatment, and the amount of 14C found in any tissue was very small (<2%). This excretion profile did not change much with increasing oral dose, although ... oxidation to CO2 was somewhat greater at the lowest dose.

5.Fire-fighting measures

5.1Extinguishing media

Suitable extinguishing media

If material on fire or involved in fire: Use foam, dry chemical, or carbon dioxide. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Keep run-off water out of sewers and water sources.

5.2Specific hazards arising from the chemical

This chemical is combustible.

5.3Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures

6.1Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2Environmental precautions

Remove all ignition sources. Personal protection: chemical protection suit and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Collect leaking liquid in covered containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3Methods and materials for containment and cleaning up

Environmental considerations- land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./ Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water. Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete.

7.Handling and storage

7.1Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2Conditions for safe storage, including any incompatibilities

Cool. Ventilation along the floor. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.

8.Exposure controls/personal protection

8.1Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2Appropriate engineering controls

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

8.3Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. 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 EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9.Physical and chemical properties

Physical state	Clear to pale yellow oily liquid
Colour	Mobile pale yellow liquid
Odour	Strong lemon odor
Melting point/ freezing point	340°C(lit.)
Boiling point or initial boiling point and boiling range	229°C(lit.)
Flammability	Combustible.
Lower and upper explosion limit / flammability limit	no data available
Flash point	104°C(lit.)
Auto-ignition temperature	225°C
Decomposition temperature	no data available
pH	ACID VALUE: 5.0 MAX
Kinematic viscosity	no data available
Solubility	In water:PRACTICALLY INSOLUBLE
Partition coefficient n-octanol/water (log value)	log Kow = 3.45 (est)
Vapour pressure	0.2 mm Hg (200 °C)
Density and/or relative density	0.889
Relative vapour density	5 (vs air)
Particle characteristics	no data available

10.Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

NOT STABLE TO ALKALIES AND STRONG ACIDS

10.3Possibility of hazardous reactions

CombustibleCITRAL is an aldehyde. Aldehydes are frequently involved in self-condensation or polymerization reactions. These reactions are exothermic; they are often catalyzed by acid. Aldehydes are readily oxidized to give carboxylic acids. Flammable and/or toxic gases are generated by the combination of aldehydes with azo, diazo compounds, dithiocarbamates, nitrides, and strong reducing agents. Aldehydes can react with air to give first peroxo acids, and ultimately carboxylic acids. These autoxidation reactions are activated by light, catalyzed by salts of transition metals, and are autocatalytic (catalyzed by the products of the reaction). The addition of stabilizers (antioxidants) to shipments of aldehydes retards autoxidation. This compound can react with alkalis and strong acids. It can readily isomerize.

10.4Conditions to avoid

no data available

10.5Incompatible materials

no data available

10.6Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

11.Toxicological information

Acute toxicity

- Oral: LD50 Mouse oral 1440 mg/kg bw
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12.Ecological information

12.1Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: EC50 Daphnia magna (Water flea, <24 hr old) 10 mg/L/24 hr; static, 21-23°C, pH 7.4-7.8, dissolved oxygen 7.5-8.0 mg/L; Effect: immobilization /98.9% pure
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2Persistence and degradability

AEROBIC: Citral, present at 100 mg/L, reached 92% of its theoretical BOD in four weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(1); therefore, this compound is expected to biodegrade rapidly.

12.3Bioaccumulative potential

An estimated BCF of 10 was calculated in fish for citral(SRC), using a water solubility of 1,340 mg/L(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4Mobility in soil

The Koc of citral is estimated as 83(SRC), using a water solubility of 1,340 mg/L(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that citral is expected to have high mobility in soil.

12.5Other adverse effects

no data available

13.Disposal considerations

13.1Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information

14.1UN Number

ADR/RID: UN2735 IMDG: UN2735 IATA: UN2735

14.2UN Proper Shipping Name

ADR/RID: AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.

IMDG: AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.

IATA: AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.

14.3Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA: 8

14.4Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6Special precautions for user

no data available

14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15.Regulatory information

15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
citral	citral	5392-40-5	none