

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT CODE	A0032
PRODUCT NAME	CITRAL EX LITSEA (CITRAL)
SUPPLIER	Shanghai M & U International Trade Co., Ltd. Rm 1717, No 598 North NuJiang Road 200333 Shanghai, China +86-21-32515501 32515502 sales@mu-intel.com

FOR EMERGENCIES CALL CHEMTREC: 800-424-9300 (24-HOURS)

2. HAZARD IDENTIFICATION:

Physical hazards

Not classified.

Health hazards

Acute toxicity, oral	Category 5
Acute toxicity, dermal	Category 5
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Sensitization, skin	Category 1

Environmental hazards

Hazardous to the aquatic environment, acute hazard	Category 2
Hazardous to the aquatic environment, long-term hazard	Category 2

Label elements



Signal word

Warning

Hazard statement

H303 + H313	May be harmful if swallowed or in contact with skin.
H315	Causes skin irritation.
H315 + H320	Causes skin and eye irritation.
H317	May cause an allergic skin reaction.

H319 Causes serious eye irritation.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

P261 Avoid breathing mist or vapor.
P264 Wash 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.
P280 Wear eye/face protection.

Response

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.
P312 Call a POISON CENTER/doctor if you feel unwell.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage

Store away from incompatible materials.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

After prolonged contact with highly porous materials, this product may spontaneously combust.

Supplemental information

None.

3. COMPOSITION AND INFORMATION ON INGREDIENTS:

Substances

Chemical name	Common name and synonyms	CAS number	%
Citral	2,6- OCTADIENAL, 3,7-DIMETHYL 2,6- dimethyl octadien-2,6-al-8 3,7-DIMETHYL-2,6-OCTADIENAL 3,7- dimethylocta-2,6-dienal	5392-40-5	>= 80

4. FIRST-AID GUIDE:

Inhalation

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.

For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.

Skin contact

Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.

Eye contact

Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.

Ingestion

Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Most important symptoms/effects, acute and delayed

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Indication of immediate medical attention and special treatment needed

Not available.

General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. FIRE-FIGHTING GUIDE:**Suitable extinguishing media**

Water spray, fog, CO₂, dry chemical, or alcohol resistant foam.

Unsuitable extinguishing media

Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Fire may produce irritating, corrosive and/or toxic gases. Porous material such as rags, paper, insulation, or organic clay may spontaneously combust when wetted with this material.

Special protective equipment and precautions for firefighters

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters

protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode when fighting fires.

Firefighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.

Specific methods

Use water spray to cool unopened containers.

General fire hazards

Static charges generated by emptying package in or near flammable vapor may cause flash fire.

6. ACCIDENTAL RELEASE GUIDE

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.

The product is immiscible with water and will spread on the water surface.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Prevent product from entering drains. Do not allow material to contaminate ground water system. Absorb in vermiculite, dry sand or earth and place into containers.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste. Collect and dispose of spillage as indicated in section 13 of the SDS.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid release to the environment. Retain and dispose of contaminated wash water. Contact local authorities in case of spillage to drain/aquatic environment

7. HANDLING AND STORAGE:

Precautions for safe handling

Do not handle or store near an open flame, heat or other sources of ignition. Porous material such as rags, paper, insulation, or organic clay may spontaneously combust when wetted with this material. May auto-oxidize with sufficient heat generation to ignite if spread (as a thin film) or absorbed on porous or fibrous material. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Contaminated rags and cloths must be put in fireproof containers for disposal. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Do not store in direct sunlight. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Keep under a nitrogen blanket.

8. EXPOSURE AND PERSONAL PROTECTION:

Occupational exposure limits

US.ACGIH Threshold Limit Values

Material	Type	Value	Form
CITRAL (CAS 5392-40-5)	TWA	5 ppm	Inhalable fraction and vapor

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US ACGIH Threshold Limit Values: Skin designation

CITRAL (CAS 5392-40-5) can be absorbed through the skin.

Appropriate engineering controls

Use explosion-proof ventilation equipment to stay below exposure limits. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles). Face shield is recommended.

Skin protection

Hand protection

Chemical resistant gloves.

Other

Use of an impervious apron is recommended.

Respiratory protection

Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance	Refer to Spec Sheet
Physical state	Liquid.
Form	Liquid.
Color	Refer to Spec Sheet
Odor	Characteristic.
Odor threshold	Not available.
pH	5
Melting point/freezing	point 14 °F (-10 °C)
Initial boiling point and boiling range	442.4 - 444.2 °F (228 - 229 °C) at 760.00 mmHg
Flash point	> 200.0 °F (> 93.3 °C) Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower(%)	Not available.
Flammability limit - upper(%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.2 mm Hg at 20 °C
Vapor density	5.3
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient(n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	0.89 g/cm ³ estimated
Flammability class	Combustible IIIB estimated
Molecular formula	C ₁₀ -H ₁₆ -O
Molecular weight	152.23 g/mol
Specific gravity	0.89 at 25 °C

10. STABILITY AND REACTIVITY:

Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability

Material is stable under normal conditions.

Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

Conditions to avoid

Porous material such as rags, paper, insulation, or organic clay may spontaneously combust when wetted with this material.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition products

No hazardous decomposition products if stored and handled as indicated.

11. TOXICOLOGICAL INFORMATION:

Information on likely routes of exposure

Inhalation

Prolonged inhalation may be harmful.

Skin contact

May be harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction.

Eye contact

Causes serious eye irritation. Causes mild eye irritation.

Ingestion

May be harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity

May be harmful if swallowed. May be harmful in contact with skin. May cause an allergic skin

reaction.

Product	Species	Test Results
CITRAL (CAS 5392-40-5) Acute Dermal LD50	Rabbit	2250 mg/kg
Oral LD50	Rat	4950 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation

Causes skin irritation.

Species, rabbit: Result - Irritant. Method: BASF-Test

Serious eye damage/eye irritation

Causes serious eye irritation.

Species, rabbit: Result - Slightly irritating. Method: BASF-Test

Respiratory or skin sensitization

Respiratory sensitization

Not a respiratory sensitizer.

Skin sensitization

May cause an allergic skin reaction.

Guinea pig maximization test. Species: guinea pig. Result: sensitizing

Germ cell mutagenicity

No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

ACGIH Carcinogens

CITRAL (CAS 5392-40-5) A4 Not classifiable as a human carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity

This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity single exposure

Not classified.

Specific target organ toxicity repeated exposure

Not classified.

Aspiration hazard

Not an aspiration hazard.

Chronic effects

Prolonged inhalation may be harmful.

12. ECOLOGICAL INFORMATION:**Ecotoxicity** Toxic to aquatic life with long lasting effects.

Product	Species	Test Results
CITRAL (CAS 5392-40-5) Acute Other EC20	Activated sludge of a predominantly domestic sewage	68 mg/l, 0.5 hours OECD Guideline 209 aquatic
Aquatic Other EC50	Bacterium	2100 mg/l, 0.5 hours DIN 38412 Part 27 (draft) aquatic - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.
Acute Algae EC50	Green algae (<i>Chlamydomonas variabilis</i>)	103.8 mg/l, 72 hours DIN 38412 Part 9 static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration
Crustacea EC50	<i>Daphnia magna</i>	7 mg/l, 48 hours Directive 79/831/EEC static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.
Fish LC50	Ides, silver or golden orfe (<i>Leuciscus idus</i>)	4.6 - 10 mg/l, 96 hours DIN 38415 Part 15 static - The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.

* Estimates for product may be based on additional component data not shown.

Persistence and degradability

Biological/Abiological Degradation

Test method: OECD 301C; ISO 9408; 92/69/EEC, C.4-F (aerobic), activated sludge, domestic

Method of analysis: BOD of the ThOD

Degree of elimination: 92% (28 d)

Test method: OECD 301F; ISO 9408; 92/69/EEC, C.4-D, activated sludge, domestic

Method of analysis: BOD of the ThOD

Degree of elimination: > 90% (28d)

Evaluation: Readily biodegradable (according to OECD criteria).

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. DISPOSAL RECOMMENDATIONS:**Disposal instructions**

Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

Not established.

Waste from residues / unused products

Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. TRANSPORTATION INFORMATION:

ADN UN number UN proper shipping name Transport hazard class(es) Subsidiary class(es) Packing group Environmental hazards Labels required	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL) 9 III Yes 9
ADR UN number UN proper shipping name Transport hazard class(es) Subsidiary class(es) Packing group Environmental hazards Labels required	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL) 9 - III Yes 9
RID UN number UN proper shipping name Transport hazard class(es) Subsidiary class(es) Packing group Environmental hazards Labels required	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL) 9 - III Yes 9
DOT BULK UN number Proper shipping name Hazard class Packing group Marine pollutant Environmental hazards Special provisions Packaging exceptions Packaging bulk	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL) 9 III Yes 8, 146, 335, IB3, T4, TP1, TP29 155 241
DOT NON-BULK	Not regulated as dangerous goods.
IATA	Not regulated as dangerous goods.
IMDG UN number UN proper shipping name	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL)

Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Labels required	9
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

ADN; ADR; DOT BULK; IMDG; RID



Marine pollutant



15. REGULATORY INFORMATION:

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes

Delayed Hazard - No

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard – No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

**Safe Drinking Water Act
(SDWA)**

Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. OTHER INFORMATION:

The information in this SDS was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond M&U's control, it is the responsibility of the user both to determine safe conditions for use of this product and to assume liability for loss, damage, or expense arising out of the products improper use. No warranty expressed or implied regarding the product described herein will be created by or inferred from any statement or omission in the SDS. Various federal, state, or provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in the SDS. The user should review these regulations to ensure full compliance.

Prepared By: M&U International LLC

Revised: 02/17/2015