# SAFETY DATA SHEET

## 1. PRODUCT AND COMPANY IDENTIFICATION:

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

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

## 2. HAZARD IDENTIFICATION:

**Physical hazards**
Not classified.

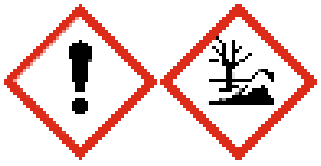
**Health hazards**

| | |
|---|---|
| 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<br>2,6- dimethyl octadien-2,6-al-8<br>3,7-DIMETHYL-2,6-OCTADIENAL | 5392-40-5 | >= 80 |

| 3,7- dimethylocta-2,6-dienal |
|---|

## 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 firefighter's 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** | point14 °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/cm3 estimated |
| **Flammability class** | Combustible IIIB estimated |
| **Molecular formula** | C10-H16-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)<br>Acute<br>Other<br>EC20 | Activated sludge of a predominantly domestic sewage | 68 mg/l, 0.5 hours OECD Guideline 209 aquatic |
| Aquatic<br>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<br>Algae EC50 | Green algae (Chlamydomonas variabilis) | 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 | Daphnia magna | 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 | Ide, silver or golden orfe (Leuciscu idus) | 4.6 - 10 mg/l, 96 hours DIN 38415 Part 15 static - The product has low solubility<br>in the test medium. An aqueous solution<br>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** | 3082 |
| **UN proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL) |
| **Transport hazard class(es)** | 9 |
| **Subsidiary class(es)** | III |
| **Packing group** | Yes |
| **Environmental hazards** | 9 |
| **Labels required** | |
| **ADR** | |
| **UN number** | 3082 |
| **UN proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL) |
| **Transport hazard class(es)** | 9 |
| **Subsidiary class(es)** | - |
| **Packing group** | III |
| **Environmental hazards** | Yes |
| **Labels required** | 9 |
| **RID** | |
| **UN number** | 3082 |
| **UN proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL) |
| **Transport hazard class(es)** | 9 |
| **Subsidiary class(es)** | - |
| **Packing group** | III |
| **Environmental hazards** | Yes |
| **Labels required** | 9 |
| **DOT** | |
| **BULK** | |
| **UN number** | 3082 |
| **Proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRAL) |
| **Hazard class** | 9 |
| **Packing group** | III |
| **Marine pollutant** | Yes |
| **Environmental hazards** | |
| **Special provisions** | 8, 146, 335, IB3, T4, TP1, TP29 |
| **Packaging exceptions** | 155 |
| **Packaging bulk** | 241 |
| **DOT** | |
| **NON-BULK** | Not regulated as dangerous goods. |
| **IATA** | Not regulated as dangerous goods. |
| IMDG | |
| UN number | 3082 |

| | |
|---|---|
| UN proper shipping name | 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