



MATERIAL SAFETY DATA SHEET

CONTACT : **LEONID CHEMICALS**
Leonid Chemicals Pvt Ltd
62/A-2 1st Stage, Yeshwanthpur Industrial Suburb
Ashokpuram School Road
Bangalore-560 022, Karnataka, INDIA
Ph: +91-80-2337 8354, Fax: +91-80-2357 4827

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number : 768
Company Identification

MANUFACTURER/DISTRIBUTOR

LEONID CHEMICALS
62/A-2 2nd Stage, Industrial Suburb
Yeshwanthpur, Bangalore -22, INDIA
Ph- +91-80-23378354

COMPOSITION/INFORMATION ON INGREDIENTS

Components

| Material CAS Number | % |
|--|-------|
| 1,1,2,2-Tetrahydroperfluoro-1-Hexanol 2043-47-2 | 1-2 |
| 1,1,2,2-Tetrahydroperfluoro-1-Octanol 647-42-7 | 27-34 |
| 1,1,2,2-Tetrahydroperfluoro-1-Decanol 678-39-7 | 29-34 |
| 1,1,2,2-Tetrahydroperfluoro-1-Dodecanol 865 - 86 -1 | 17-21 |
| 1,1,2,2-Tetrahydroperfluoro-1-Tetradecanol 39239 - 77-5 | 6-9 |
| 1,1,2,2-Tetrahydroperfluoro-1-Hexadecanol 60699 - 51 - 6 | 2-5 |
| 1,1,2,2-Tetrahydroperfluoro-1-Octadecanol 65104 - 67 - 8 | 1-2 |

HAZARDS IDENTIFICATION

Potential Health Effects

Skin contact may cause skin irritation with discomfort or rash. Data to evaluate the skin permeation hazard of this compound are insufficient. There are no reports of human sensitization.

Eye contact may cause eye irritation with discomfort, tearing, or blurring of vision.

Based on animal experiments, gross overexposure may cause abnormal liver or kidney function as detected by laboratory tests.

Based on related products, inhalation of spray or mist may cause nasal, throat, or lung irritation. Inhalation of large amounts of respirable particles may be toxic to the lungs.

Symptoms may be modest initially, followed in hours by severe shortness of breath requiring prompt medical attention.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.



FIRST AID MEASURES

First Aid

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Call a physician.

SKIN CONTACT

Flush skin with water after contact. Wash contaminated clothing before reuse.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person.

Call a physician.

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(FIRST AID MEASURES - Continued)

Notes to Physicians

Activated charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 grams activated charcoal in 400 mL water and mix thoroughly. Administer 5 mL/kg, or 350 mL for an average adult.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point : Does not ignite

Method : PMCC

Noncombustible. Hazardous decomposition products including carbon dioxide, carbon monoxide, hydrogen fluoride, toxic gases or particles may be formed during combustion. These products may cause severe eye, nose, throat, and lung irritation or toxic effects.

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO₂.

Fire Fighting Instructions

Evacuate personnel to a safe area. Wear self-contained breathing apparatus.

Avoid breathing decomposition products.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spill Clean Up

Shovel or sweep up.

Accidental Release Measures

Flush spill area with water.

HANDLING AND STORAGE

Handling (Personnel)

Avoid contact with eyes. Avoid contact with skin. Avoid contact with clothing. Wash thoroughly after handling. Do not store or consume food, drink, or tobacco in areas where they may become contaminated with this material. Avoid circumstances that produce respirable particles unless suitable ventilation and respirator are used.

Storage

Keep container tightly closed.
Keep away from open flames and heated surfaces above 200 degrees C (392 deg F).

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Keep container tightly closed. Use only with adequate ventilation. Vent heated extruder or dryer fumes outside work area. Do not aerosolize. In spray applications, use airless type pressure spray equipment at less than 60 psi, and exhaust ducts, drip pans, or other design features to minimize worker exposure to mists and overspray.

Keep away from open flames and heated surfaces above 200 degC (392 degF).

Personal Protective Equipment

EYE FACE PROTECTION

Wear safety glasses or coverall chemical splash goggles.

RESPIRATORS

Where there is potential for airborne exposures in excess of applicable limits, wear NIOSH approved respiratory protection.

PROTECTIVE CLOTHING

Where there is potential for skin contact have available and as appropriate, impervious gloves, apron, pants, and jacket.

Exposure Guidelines

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Exposure Limits

"ZONYL" BA Fluorotelomer Intermediate

PEL (OSHA) : None Established

TLV (ACGIH) : None Established

AEL * (DuPont) : 5 mg/m³, 8 Hr. TWA

15 mg/m³, 15 minute TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point : 145-245 C (293-473 F) @ 760 mm Hg

Melting Point : 55-65 C (131-149 F)

Solubility in Water : Negligible

Odor : Wax-like

Form : Solid, Waxy

Color : Pale to Medium Tan

Specific Gravity : 1.7

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

None reasonably foreseeable.

Decomposition

Hazardous decomposition products including carbon dioxide, carbon monoxide, hydrogen fluoride, toxic gases or particles may be formed during combustion. These products may cause severe eye, nose, throat, and lung irritation or toxic effects.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Inhalation 4 hour LC50: 35.3 mg/l in rats

Oral ALD: 11,000 mg/kg in rats

The product is a slight skin irritant, a slight eye irritant, and is not a skin sensitizer in animals. The 5962PP DuPont Page 6

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(TOXICOLOGICAL INFORMATION - Continued)

effects in animals exposed by inhalation to single high doses include irregular breathing, salivation, and discharge from the eyes and nose. Large repeated doses (approximately 1000 times the AEL) caused slight liver and kidney damage. Repeated doses of approximately 20 mg/m³ had no effects. The effects in animals exposed by ingestion to single high doses include irregular respiration, weight loss, diarrhea and weakness. Repeated exposure caused reversible liver and kidney changes. The product was negative in the Bacterial Reverse Mutation Test with an independent repeat assay. An In Vitro mammalian chromosome aberration test using human peripheral lymphocytes was negative.

ECOLOGICAL INFORMATION

Ecotoxicological Information
96 hour LC50, Fathead minnows : 316 mg/L.

DISPOSAL CONSIDERATIONS

Waste Disposal
Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not burn.

TRANSPORTATION INFORMATION

Shipping Information
Not Regulated as a hazardous material by DOT, IMO, or IATA.

REGULATORY INFORMATION

U.S. Federal Regulations
TSCA Inventory Status : Reported/Included.
TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312
Acute : Yes
Chronic : No
Fire : No
Reactivity : No
Pressure : No
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OTHER INFORMATION

NFPA, NPCA-HMIS
NPCA-HMIS Rating
Health : 2
Flammability : 0
Reactivity : 0
Personal Protection rating to be supplied by user depending on use conditions.