MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name **Lysergic Acid Diethylamide Tartrate**

Catalog number 1371002

Version # 02

Revision date 07-16-2012

Chemical name Ergoline-8-beta-carboxamide, 9,10-didehydro-N,N-diethyl-6-methyl-, D-tartrate

CAS # 15232-63-0

Synonym(s) Lysergide D-tartrate * LSD

Manufacturer information U. S. Pharmacopeia
12601 Twinbrook Parkway
Rockville, MD 20852-1790
RS Technical Services 301-816-8129

2. Hazards Identification

Emergency overview DANGER

Fatal if swallowed, in contact with skin, or inhaled. Causes damage to the brain. May damage fertility or the unborn child.

OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects

Eyes May cause irritation.

Skin May cause irritation. May cause adverse effects.

Inhalation May cause irritation. May cause adverse effects.

Ingestion May cause irritation. May cause adverse effects.

Target organs Brain.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Lysergic Acid Diethylamide Tartrate	15232-63-0	90 - 100

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Skin contact Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. For minor skin contact, avoid spreading material on unaffected skin. Get medical attention immediately.

Inhalation Move to fresh air. Call a physician or poison control center immediately.

Ingestion IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Never give anything by mouth to a victim who is unconscious or is having convulsions. Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to physician

Treatment of overdose should be symptomatic and supportive.
Gastrointestinal decontamination is generally not necessary. Do not induce vomiting. Position the patient to prevent aspiration of gastric contents if vomiting does occur.
Reduce stimuli and administer antianxiety agents (diazepam or chlordiazepoxide) and neuroleptic drugs (haloperidol). Use caution when using chlorpromazine or cyproheptadine.
For rhabdomyolysis, administer 0.9% saline. Monitor input and output, electrolytes, CK, and renal function. Administer diuretics if needed to maintain urine output. Urinary alkalinization is NOT recommended.
For hyperthermia, use cold compresses, cooling blankets, and/or fans.
For seizures, administer a benzodiazepine intravenously, followed by phenobarbital or propofol if the seizures recur. Monitor for hypotension, dysrhythmias, respiratory depression, and need for endotracheal intubation. Evaluate for hypoglycemia, electrolyte disturbances, hypoxia.
For neuroleptic malignant syndrome, administer dantrolene or bromocriptine along with conservative treatment.
(Poisindex) (HSDB)

General advice

Immediate medical attention is required. Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

5. Fire Fighting Measures

Flammable properties

This material is assumed to be combustible. As with all dry powders, it is advisable to ground mechanical equipment in contact with dry material to dissipate the potential buildup of static electricity.

Extinguishing media

Suitable extinguishing media

Water spray, dry chemical, carbon dioxide, or foam as appropriate for surrounding fire and materials.

Fire fighting equipment/instructions

As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.

6. Accidental Release Measures

Personal precautions

Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them.

Environmental precautions

Prevent further leakage or spillage if safe to do so.

Methods for containment

Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up

Wear approved respiratory protection, chemically compatible gloves, and protective clothing (all disposable). Wipe up spillage or collect spillage using a high-efficiency vacuum cleaner. Avoid breathing dust. Place spillage in appropriately labeled container for disposal. Wash spill site.

7. Handling and Storage

Handling

As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly. Use of a designated area is recommended for handling of potent materials.

Storage

Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

8. Exposure Controls / Personal Protection

Engineering controls

Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Avoid any open handling of this material, particularly for grinding, crushing, weighing, or other dust-generating or aerosol-generating procedures. Use a laboratory fume hood, vented enclosure, glovebox, or other effective containment.

Personal protective equipment

Eye / face protection	Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.
Hand protection	Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy. This material is extremely potent. To reduce the risk of contamination of skin and surfaces, wear two pairs of gloves. Remove the outer gloves after handling and cleanup of the material, and remove the inner gloves only after removing other personal protective equipment.
Skin protection	For handling of laboratory scale quantities, a disposable lab coat or isolation gown over street clothes is recommended. Where significant quantities are handled, work clothing and booties may be necessary to prevent take-home contamination.
Respiratory protection	Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134).
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Physical state	Solid.
Appearance	Colorless crystalline substance.
Form	Solid.
Odor	Odorless.
Odor threshold	Not available.
pH	Not available.
Vapor pressure	< 0.0000001 kPa at 25°C
Vapor density	Not available.
Boiling point	Not available.
Melting point/Freezing point	176 - 185 °F (80 - 85 °C)
Solubility (water)	Soluble.
Specific gravity	Not available.
Relative density	Not available.
Flash point	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Partition coefficient (n-octanol/water)	2.95
Molecular weight	323.4 (Free base)
Molecular formula	(C20H25N3O)3 . (C4H6O6)2

Other data

Chemical family	Ergoline derivative. Indolealkylamine.

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Conditions to avoid	Light. Heat.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	When heated to decomposition, material emits toxic fumes of NOx. Emits toxic fumes under fire conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Effects of exposure Distorted perceptions. Sense of unreality and detachment. Hallucinations. Disorientation. Depression. Excitement. Anxiety. Panic. Insomnia. Tremor. Muscle rigidity. Weakness. Unsteadiness. Fever. Chills. Sweating. Enlarged pupils. Loss of appetite. Nausea. Vomiting. Increase in heart rate. Increase in blood pressure. Bleeding or bruising. Seizures. Respiratory arrest.

Medical conditions aggravated by exposure Psychosis. Epilepsy.

Chronic effects Mental disturbances.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Mutagenicity

In vitro chromosomal abnormalities have been reported.

Product	Test Results
Lysergic Acid Diethylamide Tartrate	Micronucleus test Result: Negative Species: Mouse Comments: Data for LSD.

Reproductive effects

LSD can cause the uterus to contract, which could result in miscarriage. Incidence of fetal abnormalities appears to be higher among women who use illicit LSD, but the effects of pure LSD on pregnancy and the fetus remain uncertain.

Product	Test Results
Lysergic Acid Diethylamide Tartrate	Reproductivity and development Result: Fetal loss; not teratogenic Species: Rat Comments: 20 micrograms of LSD administered orally during gestation.

12. Ecological Information

Persistence and degradability Not available.

Partition coefficient 2.95

13. Disposal Considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose of waste in accordance with all applicable Federal, State, and local laws. Additionally, because this is a controlled substance, notify local DEA office for appropriate disposal procedures.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

IATA

Basic shipping requirements:

Proper shipping name Toxic solid, organic, n.o.s. (Lysergic Acid Diethylamide Tartrate)
Hazard class 6.1
UN number 2811
Packing group III

DOT

Basic shipping requirements:

UN number 2811
Proper shipping name Toxic solid, organic, n.o.s. (Lysergic Acid Diethylamide Tartrate)
Hazard class 6.1
Packing group III

Additional information:

ERG number 154

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/SARA Hazardous Substances - Not applicable.
Schedule I Controlled Substance

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical No

Inventory status

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

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

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

16. Other Information

Disclaimer USP Reference Standards are sold for chemical test and assay purposes only, and NOT for human consumption. The information contained herein is applicable solely to the chemical substance when used as a USP Reference Standard and does not necessarily relate to any other use of the substance described, (i.e. at different concentrations, in drug dosage forms, or in bulk quantities). USP Reference Standards are intended for use by persons having technical skill and at their own discretion and risk. This information has been developed by USP staff from sources considered reliable but has not been independently verified by the USP. Therefore, the USP Convention cannot guarantee the accuracy of the information in these sources nor should the statements contained herein be considered an official expression. NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE is made with respect to the information contained herein.

Issue date 07-16-2012

This data sheet contains changes from the previous version in section(s): This document has undergone significant changes and should be reviewed in its entirety.