Section 1 - Product and Company Information

Product Name                       LYSERGIC ACID DIETHYLAMIDE
Product Number                     L7007
Brand                              SIGMA
Company                            Sigma-Aldrich
Street Address                     3050 Spruce Street
City, State, Zip, Country          SAINT LOUIS MO 63103 US
Technical Phone:                   314 771 5765
Emergency Phone:                   414 273 3850 Ext. 5996
Fax:                               800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name                          CAS #                 SARA 313
D-LYSERGIC ACID DIETHYLAMIDE            50-37-3               No

Formula         C20H25N3O
Synonyms        ACID * Cubes * Delysid *
                9,10-Didehydro-N,N-diethyl-6-methyl-ergoline-8-bet
                a-carboxamide * Diethylamid kyseliny lysergove
                (Czech) * N,N-Diethyllysergamide * D-Lsd *
                Heavenly Blue * LSD * LSD-25 * Lysergamid *
                Lysergamide, N,N-diethyl- * Lysergaure
                diethylamid * D-Lysergic acid diethylamide *
                Lysergic acid diethylamide-25 * Lysergide *
                Lysergsauerediaethylamid * Pearly gates * Royal
                Blue * Wedding bells
RTECS Number:   KE4100000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Highly Toxic (USA) Very Toxic (EU).
Very toxic by inhalation, in contact with skin and if swallowed.
Limited evidence of a carcinogenic effect.
Possible mutagen. Target organ(s): Central nervous system.

HMIS RATING
HEALTH: 4
FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING
HEALTH: 4
FLAMMABILITY: 0
REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures
ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

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

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.
Store at -20°C
Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Physical State: Solid</th>
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<tbody>
<tr>
<td>Property</td>
<td>Value</td>
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<tr>
<td>Molecular Weight</td>
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<td>pH</td>
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<td>MP/MP Range</td>
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<td>Freezing Point</td>
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<tr>
<td>Evaporation Rate</td>
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<td>Miscellaneous Data</td>
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<tr>
<td>Solubility</td>
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</tr>
</tbody>
</table>

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

HAZARDOUS POLYMERIZATION
Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: May cause skin irritation.
Skin Absorption: May be fatal if absorbed through skin.
Eye Contact: May cause eye irritation.
Inhalation: May be fatal if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be fatal if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)
Central nervous system.

SIGNS AND SYMPTOMS OF EXPOSURE
Exposure can cause disorders of visual perception, extreme alterations of mood, depression, distortion of body image, depersonalization, disorders of thought and time sense, anxiety, nausea, vomiting and variable effects on heart-rate and blood pressure. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Intravenous
Rat
16 MG/KG
LD50

Intraperitoneal
Mouse
50 MG/KG
LD50

Intravenous
Mouse
46 MG/KG
LD50

Intravenous
Rabbit
300 UG/KG
LD50

Subcutaneous
Guinea pig
16 MG/KG
LD50

Oral
Bird (wild)
1.8 mg/kg
LD50

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 150 UG/KG  
Route of Application: Oral  
Exposure Time: (6-15D PREG)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Mouse  
Dose: 200 UG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (6D PREG)  
Result: Specific Developmental Abnormalities: Eye, ear.

Species: Mouse  
Dose: 40 UG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (7D PREG)  
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

Species: Mouse  
Dose: 5 UG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (12D PREG)  
Result: Specific Developmental Abnormalities: Central nervous system. Effects on Newborn: Biochemical and metabolic.

Species: Mouse  
Dose: 20 UG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (8D PREG)  
Result: Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Cardiovascular (circulatory) system. Specific Developmental Abnormalities: Other developmental abnormalities.

Species: Hamster  
Dose: 84 NG/KG  
Route of Application: Subcutaneous  
Exposure Time: (8D PREG)  
Result: Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Homeostasis  
Specific Developmental Abnormalities: Other developmental abnormalities.

CHRONIC EXPOSURE - MUTAGEN  
Result: Laboratory experiments have shown mutagenic effects.

Species: Human  
Dose: 1 UG/L  
Exposure Time: 24H  
Cell Type: leukocyte  
Mutation test: Cytogenetic analysis

Species: Human  
Route: Intravenous  
Dose: 600 UG/KG  
Mutation test: Cytogenetic analysis

Species: Man  
Route: Unreported  
Dose: 17 UG/KG  
Mutation test: Cytogenetic analysis
Species: Human  
Route: Unreported  
Dose: 3 UG/KG  
Mutation test: Cytogenetic analysis

Species: Mouse  
Route: Intraperitoneal  
Dose: 25 UG/KG  
Mutation test: Cytogenetic analysis

Species: Mouse  
Route: Parenteral  
Dose: 1 MG/KG  
Mutation test: Cytogenetic analysis

Species: Mouse  
Route: Oral  
Dose: 7500 NG/KG  
Exposure Time: 5W  
Mutation test: Cytogenetic analysis

Species: Mouse  
Route: Intraperitoneal  
Dose: 40 UG/KG  
Mutation test: Dominant lethal test

Species: Mouse  
Route: Subcutaneous  
Dose: 10 MG/KG  
Exposure Time: 5W  
Mutation test: sperm

Species: Hamster  
Route: Intraperitoneal  
Dose: 375 UG/KG  
Exposure Time: 5W  
Mutation test: Cytogenetic analysis

Species: Hamster  
Route: Oral  
Dose: 375 UG/KG  
Exposure Time: 5W  
Mutation test: Cytogenetic analysis

Species: Hamster  
Dose: 1180 MG/L  
Cell Type: lung  
Mutation test: Cytogenetic analysis

Species: Monkey  
Route: Multiple  
Dose: 170 UG/KG  
Exposure Time: 32W  
Mutation test: Cytogenetic analysis

Species: Monkey  
Dose: 1 MG/L  
Exposure Time: 24H  
Cell Type: leukocyte  
Mutation test: Cytogenetic analysis
Species: Mammal  
Dose: 33 UMOL/L  
Cell Type: lymphocyte  
Mutation test: DNA

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Woman  
Dose: 2500 NG/KG  
Route of Application: Oral  
Exposure Time: (1D PRE)  
Result: Effects on Fertility: Abortion.

Species: Rat  
Dose: 300 UG/KG  
Route of Application: Oral  
Exposure Time: (13-15D PREG)  
Result: Effects on Newborn: Biochemical and metabolic.

Species: Rat  
Dose: 50 UG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (1D MALE)  
Result: Effects on Fertility: Mating performance (e.g., # sperm positive females per # females mated; # copulations per # estrus cycles).

Species: Rat  
Dose: 5 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (4D PREG)  
Result: Effects on Newborn: Stillbirth.

Species: Rat  
Dose: 10 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (1D MALE)  
Result: Effects on Fertility: Mating performance (e.g., # sperm positive females per # females mated; # copulations per # estrus cycles).

Species: Rat  
Dose: 400 UG/KG  
Route of Application: Subcutaneous  
Exposure Time: (18-21D PREG)  
Result: Effects on Newborn: Biochemical and metabolic.

Species: Mouse  
Dose: 1200 UG/KG  
Route of Application: Intraperitoneal  
Exposure Time: (1D PRE)  
Result: Effects on Fertility: Other measures of fertility

Species: Mouse  
Dose: 10 MG/KG  
Route of Application: Subcutaneous  
Exposure Time: (10D MALE)  
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Species: Hamster  
Dose: 84 NG/KG
Route of Application: Subcutaneous
Exposure Time: (8D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Embryo or Fetus: Fetal death. Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Section 12 - Ecological Information

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact the Drug Enforcement Administration concerning the disposal of controlled substances. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Toxic solids, organic, n.o.s.
UN#: 2811
Class: 6.1
Packing Group: Packing Group II
Hazard Label: Toxic substances.
PIH: Not PIH

IATA
Proper Shipping Name: Toxic solid, organic, n.o.s.
IATA UN Number: 2811
Hazard Class: 6.1
Packing Group: II

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION
Symbol of Danger: T+
Indication of Danger: Very toxic.
R: 26/27/28 40
Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect.
S: 45 28 36 22
Safety Statements: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). After contact with skin, wash immediately with plenty of water. Wear suitable protective clothing. Do not breathe dust.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Highly Toxic (USA) Very Toxic (EU).
Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect.
Safety Statements: Do not breathe dust. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US Statements: Possible mutagen. Target organ(s): Central nervous system.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: No
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.
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