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

1 Identification of substance:

Product details:
Product name: Diethylaminosulfur trifluoride
Stock number: 321
Manufacturer/Supplier:
LEONID CHEMICALS
62/A-2 2nd Stage, Industrial Suburb
Yeshwanthpur, Bangalore -22, INDIA
Ph- +91-80-23378354

2 Composition/Data on components:

- **Chemical characterization:**
  Description: (CAS#)
  Diethylaminosulfur trifluoride (CAS# 38078-09-0): 100%
- **Identification number(s):**
- **EINECS Number:** 253-771-2

3 Hazards identification

- **Hazard description:** C Corrosive
- **Information pertaining to particular dangers for man and environment**
  R 10 Flammable.
  R 14 Reacts violently with water.
  R 34 Causes burns.
- **Classification system**
- **HMIS ratings (scale 0-4)**

  (Hazardous Materials Identification System)
  Health (acute effects) = 3
  Flammability = 0
  Reactivity = 3

4 First aid measures

- **General information**
  Immediately remove any clothing soiled by the product.
- **After inhalation**
  Supply fresh air. If required, provide artificial respiration. Keep patient warm.
  Seek immediate medical advice.

- **After skin contact**
  Immediately wash with water and soap and rinse thoroughly.
  Seek immediate medical advice.
- **After eye contact**
  Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing** Seek immediate medical advice.

5 Fire fighting measures

- **Suitable extinguishing agents**
  In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.
- **For safety reasons unsuitable extinguishing agents** Water
- **Special hazards caused by the material, its products of combustion or resulting gases:**
  Reacts violently with water
  In case of fire, the following can be released:
  Carbon monoxide and carbon dioxide
  Nitrogen oxides (NOx)
  Sulfur oxides (SOx)
  Hydrogen fluoride (HF)
- **Protective equipment:**
  Wear self-contained respirator.
  Wear fully protective impervious suit.

6 Accidental release measures

- **Person-related safety precautions:**
  Wear protective equipment. Keep unprotected persons away.
  Ensure adequate ventilation
  Keep away from ignition sources
- **Measures for environmental protection:**
  Do not allow material to be released to the environment without proper governmental permits.
- **Measures for cleaning/collecting:**
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Use neutralizing agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
  Do not flush with water or aqueous cleansing agents
  Keep away from ignition sources.
- **Additional information:**
  See Section 7 for information on safe handling
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

7 Handling and storage

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- **Handling**
- **Information for safe handling:**
  Handle under dry protective gas.
  Keep container tightly sealed.
  Store in cool, dry place in tightly closed containers.
  Ensure good ventilation at the workplace.
- **Information about protection against explosions and fires:**
  Keep ignition sources away.
  Protect against electrostatic charges.
  Fumes can combine with air to form an explosive mixture.

- **Storage**
- **Requirements to be met by storerooms and receptacles:**
  Unsuitable material for container: ceramic, glass
- **Information about storage in one common storage facility:**
  Store away from water/moisture.
  Store away from air.
  Store away from oxidizing agents.
  Keep away from heat and direct sunlight.
- **Further information about storage conditions:**
  Refrigerate
  Store under dry inert gas.
  Protect from humidity and water.
  This product is moisture sensitive.
  Keep container tightly sealed.
  Store in cool, dry conditions in well sealed containers.
  This product is air sensitive.
  Protect from heat and direct sunlight.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:**
  Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

  Components with limit values that require monitoring at the workplace:

  Fluorides (as F)

	mg/m3
ACGIH TLV	2.5
Austria MAK	2.5
Belgium TWA	2.5
Finland TWA	2.5
France TWA	2.5
Germany MAK	2.5
Hungary TWA	1; 2-STEL
Netherlands MAC-K	3.5
Norway TWA	0.6
Poland TWA	1; 3-STEL
Sweden NGV	2
Switzerland MAK-W	1.5; 3-KZG-W
United Kingdom TWA	2.5

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Russia TWA 2
Denmark TWA 2.5
USA PEL 2.5

- **Additional information:** No data

- **Personal protective equipment**
- **General protective and hygienic measures**
  The usual precautionary measures for handling chemicals should be followed.
  Keep away from foodstuffs, beverages and feed.
  Remove all soiled and contaminated clothing immediately.
  Wash hands before breaks and at the end of work.
  Avoid contact with the eyes and skin.
- **Breathing equipment:**
  Use suitable respiratory protective device in case of insufficient ventilation.
  Use suitable respirator when high concentrations are present.
- **Protection of hands:**
  Impervious gloves
  Check protective gloves prior to each use for their proper condition.
- **Material of gloves**
  The selection of suitable gloves not only depends on the material, but also on quality.
  Quality will vary from manufacturer to manufacturer.
- **Eye protection:**
  Safety glasses
  Tightly sealed goggles
  Full face protection
- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

- **General Information**

- **Form:** Liquid
- **Color:** Amber colored
- **Odor:** Not determined
- **Value/Range Unit Method**
- **Change in condition**
- **Melting point/Melting range:** Not determined
- **Boiling point/Boiling range:** 46-47 ° C 10mm Hg
- **Sublimation temperature / start:** Not determined

- **Flash point:** 23 ° C

- **Ignition temperature:** Not determined

- **Decomposition temperature:** Not determined

- **Danger of explosion:**
  Product is not explosive. However, formation of explosive air/vapor mixtures is possible.

- **Explosion limits:**

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- **Lower:** Not determined
- **Upper:** Not determined

- **Vapor pressure:** Not determined

- **Density:** at 20 ° C 1.22 g/cm³

- **Solubility in / Miscibility with**
- **Water:** Reacts violently

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
  Decomposition will not occur if used and stored according to specifications.
- **Materials to be avoided:**
  Water/moisture
  Air
  Oxidizing agents
  Heat
  Light
- **Dangerous reactions** Reacts violently with water
- **Dangerous products of decomposition:**
  Carbon monoxide and carbon dioxide
  Nitrogen oxides
  Sulfur oxides (SOx)
  Hydrogen fluoride

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:**
  Corrosive effect on skin and mucous membranes.
  Irritant to skin and mucous membranes.
- **on the eye:**
  Strong corrosive effect.
  Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**
  Fluorides may cause salivation, nausea, vomiting, diarrhea and abdominal pain, followed by weakness, tremors, shallow respiration, convulsions and coma. May cause brain and kidney damage. Chronic fluoride poisoning can cause severe bone changes, loss of weight, anorexia, anemia and dental defects.
- **Subacute to chronic toxicity:**
  Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and

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esophagus. May cause skin burns or irritation depending on the severity of the exposure.

- **Additional toxicological information:**
  Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
  To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
  No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:

- **General notes:**
  Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations

- **Product:**
- **Recommendation**
  Consult state, local or national regulations to ensure proper disposal.

- **Uncleaned packagings:**
- **Recommendation:**
  Disposal must be made according to official regulations.

14 Transport information

- **DOT regulations:**
- **Hazard class:** 4.3
- **Identification number:** UN3129
- **Packing group:** II
- **Proper shipping name (technical name):**
  WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
  (Diethylaminosulfur trifluoride)
- **Label** 4.3+8

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** 4.3 Substances which, in contact with water, emit flammable gases
- **Danger code (Kemler):** 382
- **UN-Number:** 3129
- **Packaging group:** II
- **Description of goods:** 3129 WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
  (Diethylaminosulfur trifluoride)

- **Maritime transport IMDG:**

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- **IMDG Class:** 8
- **UN Number:** 3129
- **Label** 4.3+8
- **Packaging group:** II
- **Proper shipping name:** WATER-REACTIVE LIQUID, CORROSIVE, N.O.S. (Diethylaminosulfur trifluoride)

- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** 8
- **UN/ID Number:** 3129
- **Label** 4.3+8
- **Packaging group:** II
- **Proper shipping name:** WATER-REACTIVE LIQUID, CORROSIVE, N.O.S. (Diethylaminosulfur trifluoride)

15 Regulations

- **Product related hazard informations:**

- **Hazard symbols:** C Corrosive

- **Risk phrases:**
  10 Flammable.
  14 Reacts violently with water.
  34 Causes burns.

- **Safety phrases:**
  8 Keep container dry.
  20 When using do not eat or drink.
  26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
  30 Never add water to this product.
  36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
  43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.
  45 In case of accident or if you feel unwell, seek medical advice immediately.
  60 This material and its container must be disposed of as hazardous waste.

- **National regulations**
  This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only.
  All components of this product are listed on the Canadian Domestic Substances List (DSL).

- **Information about limitation of use:**
  For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information

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gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

- **Department issuing MSDS:** Health, Safety and Environmental Department.
- **Contact:** Darrell R. Sanders

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