

MATERIAL SAFETY DATA SHEET**N,N-DIETHYLANILINE**

PRODUCT CODE NUMBER(S): 3790-5

PRODUCT IDENTIFICATION**Chemical Name and Synonyms:** *n,n*-Diethylaniline;
n-Diethylaminobenzamine; *n,n*-Diethylbenzamine**chemical family:** *Aromatic amine***Chemical Formula:** $C_6H_5N(C_2H_5)_2$ **Product Use:** *Laboratory reagent***Manufacturer's Name and Address:***Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario L7G 4R9***Telephone No:** (905) 877-0101**Fax No:** (905) 877-6666**Emergency Telephone No:** CANUTEC (613) 996-6666**HAZARDOUS INGREDIENTS OF MATERIALS**

<i>Ingredients</i>	<i>%</i>	<i>TLV Units</i>	<i>CAS No.</i>
<i>n,n</i> -Diethylaniline	~98	Not established	91-66-7

PHYSICAL DATA**Physical State:** *Liquid***Odour and Appearance:** *Yellow, oily liquid with a characteristic, amine odour***Odour Threshold (ppm):** *Not available***Vapour Pressure (mm Hg):** *1 mm Hg at 20°C***Vapour Density (Air = 1):** *5.2***Evaporation Rate:** *Not available***Boiling Point (degrees C):** *215.5°C***Freezing Point (degrees C):** *-38.8°C***pH:** *Not available***Specific Gravity:** *0.93 @ 20°C***Coefficient of Water/Oil distribution:** *Log (oil/water) = 3.1***SHIPPING DESCRIPTION****UN:** 2432**T.D.G. Class:** 6.1**Pkg. Group:** III**REACTIVITY DATA****Chemical Stability:** *Stable at ambient temperatures. May darken slowly on long standing. At elevated temperatures, unstable.***Incompatibility with other substances:** *May react violently with acids, oxidizers, aldehydes in acidic medium. Contact with strong oxidizing agents or combustible materials may cause fire. Hazardous polymerization may occur at elevated temperatures.***Reactivity:** *Avoid elevated temperatures, flame, sparks, ignition sources, all incompatible materials, generation of mist.***Hazardous Decomposition Products:** *Decomposition products are less hazardous than the material.***FIRE AND EXPLOSION DATA****Flammability:** *Combustible. Vapour can form explosive mixtures with air at, or above, 88.9°C. Vapours may travel to distant source of ignition and flash back. Closed containers may explode in heat of fire.***Extinguishing Media:** *Alcohol or polymer foam, dry chemical, CO₂, water spray or fog. Water spray or fog may be useful to cool containers, disperse vapours, flush material away from fire. Fight fire from a safe distance, from upwind. Firefighters must wear protective equipment and clothing (encapsulating chemical resistant suit) sufficient to prevent inhalation of fumes or vapours and contact with skin and eyes. Bunker gear will not be adequate. Closed containers may rupture violently during fire; withdraw immediately in case of rising sound from vent or discoloration of container.***Flash Point (Method Used):** 85°C (CC)**Autoignition Temperature:** 630°C**Upper Flammable Limit (% by volume):** 36.5%**Lower Flammable Limit (% by volume):** 6%**Hazardous Combustion Products:** *Highly toxic fumes of aniline, cyanides, aldehydes, phenols, NO_x, CO_x***Sensitivity to Impact:** *None identified***Sensitivity to Static discharge:** *Will probably not accumulate static charge by flow or agitation. Mixtures with air probably will not be ignited by static discharge (high flash point).***TOXICOLOGICAL PROPERTIES AND HEALTH DATA***To the best of our knowledge, the physical, chemical and toxicological properties of this substance have not yet been thoroughly investigated.***Toxicological Data:****LD₅₀:** (oral, rat) 782 mg/kg; (dermal, rabbit) <935 mg/kg**LC₅₀:** (rat) 1,920 mg/m³/4 h**Effects of Acute Exposure to Product:****Inhaled:** *Toxic. Readily absorbed causing formation of methemoglobin, which decreases the ability of the blood to carry oxygen, causing dizziness, drowsiness, headache, shortness of breath, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), rapid heart rate and chocolate-brown colored blood, eventual convulsions, coma, and death. Onset may be delayed 2 to 4 hours or longer. May cause blood and central nervous system effects, anemia, reticulocytosis, hematuria, weakness, depression, headache, respiratory distress, irregular heart rate, eventual coma and death.***In contact with skin:** *Toxic. Moderately irritating in animal testing. Readily absorbed through skin, producing systemic effects as in "Inhaled".*

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In contact with eyes: May cause irritation, redness, burning, May be absorbed through eyes, causing systemic symptoms as in "Inhaled".

Ingested: Toxic. Ingestion may cause abdominal pain, nausea, vomiting, methemoglobinemia, and systemic symptoms as in "Inhaled".

Effects of Chronic Exposure to Product:

Prolonged or repeated exposure can cause methemoglobinemia (see "Inhaled"), damage to liver, spleen, kidneys, blood. Persons with pre-existing liver, kidney, or blood disease may be more susceptible to the effects of this material.

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP

Teratogenicity: No information available

Reproductive Effects: No information available

Mutagenicity: No information available

Synergistic Products: None known

PREVENTIVE MEASURES

Engineering Controls: Non-sparking, grounded ventilation separate from other exhaust ventilation systems.

Respiratory Protection: Dust/mist respirator sufficient to prevent any exposure to mists or fumes. For any detectable amount, for unknown concentrations, or in fire or spill conditions, NIOSH/MSHA approved positive pressure, full face-piece self-contained breathing apparatus, or full face-piece supplied-air respirator with auxiliary positive-pressure self-contained breathing apparatus.

Eye Protection: Chemical safety goggles and/or face shield.

Skin Protection: Impervious gloves. Other protective impervious clothing, sleeves, coveralls, boots sufficient to prevent contact.

Other Personal Protective Equipment: Eyewash and safety shower should be nearby and ready for use.

Leak and Spill Procedure: Evacuate and ventilate area. Eliminate all sources of ignition. Clean-up personnel must be thoroughly trained in the handling of hazardous materials and must wear protective equipment and clothing sufficient to prevent any inhalation of mist or vapour and any contact with skin and eyes. **DO NOT TOUCH SPILLED MATERIAL.** Prevent from entering sewers or waterways. Dike with inert substance to prevent spread of material. Absorb spills with vermiculite, dry sand, or earth and collect in labelled, closed containers for disposal in an approved facility. Contaminated absorbent may pose the same hazards as the spilled product - treat with caution. Flush area of spill with large amounts of running water.

Waste Disposal: Follow all federal, provincial, and local regulations.

Handling Procedures and Equipment: TOXIC, COMBUSTIBLE. Personnel working with this material must be thoroughly trained in its hazards, and must be trained in the handling of hazardous materials in general, and must wear appropriate protective clothing and equipment. Do not work alone with this material. Avoid all contact with this material. Avoid inhalation of mists or vapours. Avoid all sources of heat and ignition. Post "No Smoking" signs. Use non-sparking tools. Keep away from all incompatible materials (some reactions produce flammable/explosive gases). Keep work area free of incompatible substances and extraneous materials, particularly those which can burn. Do not return contaminated material to the original containers. Use the smallest amount possible for the purpose, in a designated area with appropriate ventilation. Keep containers tightly closed. Treat empty containers with caution - they will contain hazardous residues.

Storage Requirements: Store in suitable, labelled containers, in a cool, dry, well-ventilated place, out of direct sunlight, and away from ignition sources and incompatible materials. Keep container tightly closed when not in use and when empty. Protect from damage, and inspect frequently for signs of leaking. Storage facilities should be made of fire-resistant materials, and should have raised sills and trenches to drain to a safe area.

FIRST AID MEASURES

Specific Measures:

Eyes: IMMEDIATELY FLUSH EYES with gently running water for at least twenty (20) minutes, holding eyelids open during flushing. Take care not to flush contaminated water into unaffected eye. Wear protective gloves to avoid contact during first aid procedures. Get medical attention immediately.

Skin: Remove contaminated clothing (including rings, watches, belts, and shoes). Wear protective gloves to avoid contact. Flush affected areas with soap and copious amounts of running water for at least twenty (20) minutes. Obtain medical advice immediately. If symptoms of methemoglobinemia are present (bluish lips and skin), administer oxygen. Decontaminate clothing before reuse, or discard.

Inhalation: Immediately move victim to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes). Give oxygen and get medical attention immediately for any breathing difficulty, or for any indication of cyanosis (blueness in skin). If breathing has stopped, begin artificial respiration immediately. Effects of methemoglobinemia may be delayed for two to four (2-4) hours or longer; continue to monitor for at least that long. If symptoms develop, get medical attention immediately.

Ingestion: If the casualty is alert and NOT convulsing, give 2 to 4 glasses of water to drink to dilute the material. Do not induce vomiting. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water. If effects of methemoglobinemia are evident (cyanosis, blue fingertips, difficult breathing) give oxygen. Get medical attention immediately.

REFERENCES USED

CCINFO disc: MSDS's, March 2007

Budavari: The Merck Index, 12th ed., 1997

Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 1987

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: March 2004

Revision: March 2011

MSDS: 3790-5

Proposed WHMIS Designation B3; D1B; D2B

Prepared by: Caledon Laboratories Ltd. (905) 877-0101
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