

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	Flammable material; avoid heat and sources of ignition. Corrosive to eyes and skin on contact. Toxic compound, do not ingest or inhale. Lachrymator. Readily absorbed through skin.	   

Section I. Chemical Product and Company Identification

Chemical Name	Triethylamine		
Catalog Number	T0424	Supplier	TCI America 9211 N. Harborage St. Portland OR 1-800-423-8616
Synonym	N,N-Diethylethanamine		
Chemical Formula	(C ₂ H ₅) ₃ N		
CAS Number	121-44-8	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Triethylamine	121-44-8	Min. 99.0 (GC)	TWA: 10 STEL: 15 (ppm) from ACGIH TWA: 25 (ppm) from OSHA Consult local authorities for acceptable exposure limits.	Rat LD ₅₀ (oral) 460 mg/kg Rabbit LD ₅₀ (dermal) 570 mg/kg

Section III. Hazards Identification

Acute Health Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Readily absorbed through skin. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. Toxicity to the reproductive system: Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	If the chemical gets spilled on a clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data			
Flammability	Flammable.	Auto-Ignition	230°C (446°F)
Flash Points	-8°C (17.6°F)	Flammable Limits	LOWER: 1.2% UPPER: 8%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂), nitrogen oxides (NO _x).		
Fire Hazards	Reactive with strong oxidizers. Vapors may travel to source of ignition and flash back. Closed containers may explode from the heat of a fire. Highly flammable in presence of open flames and sparks, of heat.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Vapor forms explosive mixture in air. May explode if ignited in an enclosed area.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemicals, CO ₂ , alcohol foam or water spray. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures	
Spill Cleanup Instructions	Flammable material. Corrosive material. Toxic material. Lachrymatory. Readily absorbed through skin. Keep away from heat and sources of ignition. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage	
Handling and Storage Information	FLAMMABLE. CORROSIVE. TOXIC. LACHRYMATOR. READILY ABSORBED THROUGH SKIN. Reactive with strong oxidizers; may be ignited by heat, sparks, or flames. Vapors may travel to source of ignition and flash back. Closed containers may explode from heat of a fire. Empty containers may pose a fire risk. Evaporate residue under a fume hood if possible. Ground all equipment containing material. Handle with caution and minimize exposure. Keep container dry. Keep away from heat and sources of ignition. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. Avoid contact with eyes. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, acids, chlorine, hypochlorite, halogenated compounds.

Section VIII. Exposure Controls/Personal Protection	
Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Face shield. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	TWA: 10 STEL: 15 (ppm) from ACGIH TWA: 25 (ppm) from OSHA Consult local authorities for acceptable exposure limits.

Section IX. Physical and Chemical Properties			
Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Miscible with Alcohol. Very soluble in Ether, Benzene, Chloroform, Acetone. Soluble in Water.
Specific Gravity	0.73 (water=1)	Partition Coefficient	log Kow = 1.45
Molecular Weight	101.19	Vapor Pressure	7.2 kPa/20°C
Boiling Point	89°C (192.2°F)	Vapor Density	3.49 (Air = 1)
Melting Point	-115°C (-175°F)	Volatility	Not available.
Refractive Index	1.4	Odor	Fish-like.
Critical Temperature	259°C (498.2°F)	Taste	Not available.
Viscosity	Not available.		

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents, acids, chlorine, hypochlorite, halogenated compounds.

Section XI. Toxicological Information

RTECS Number	YE0175000
Routes of Exposure	Eye contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD ₅₀ (oral) 460 mg/kg Rabbit LD ₅₀ (dermal) 570 mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. Toxicity to the reproductive system: Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Readily absorbed through skin. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Triethylamine's production and use as solvent and chemical intermediate may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 57.1 mm Hg at 25 deg C indicates triethylamine will exist solely as a vapor in the ambient atmosphere. Vapor-phase triethylamine will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 4 hrs. If released to soil, triethylamine is expected to have high mobility based upon an estimated Koc of 146. However, the pKa of triethylamine is 10.78, indicating that this compound will primarily exist in cation form in the environment and cations generally adsorb to organic carbon and clay more strongly than their neutral counterparts. Volatilization from moist soil surfaces will not be an important fate process because cations do not volatilize. Triethylamine may volatilize from dry soil surfaces based upon its vapor pressure. Based on aerobic screening tests, triethylamine may be resistant to biodegradation in soil and water. Triethylamine, present at 30 mg/l, reached 28% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 100 mg/l and the Japanese MITI test. If released into water, triethylamine is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. However, triethylamine's pKa indicates that this compound will exist as a cation in neutral and acid waters and cations are expected to sorb to suspended solids and sediment. Volatilization from water surfaces will not be an important fate process since cations do not volatilize. A BCF of <5 for carp suggests the potential for bioconcentration in aquatic organisms is low. Occupational exposure to triethylamine may occur through inhalation and dermal contact with this compound at workplaces where triethylamine is produced or used. Monitoring data indicate that the general population may be exposed to triethylamine via inhalation of ambient air, and ingestion of food with this compound, and through use of other products containing triethylamine.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local or regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state, and local regulations when disposing of this substance.
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Section XIV. Transport Information

DOT Classification	DOT CLASS 3: Flammable liquid. DOT CLASS 8: Corrosive liquid.
PIN Number	UN1296
Proper Shipping Name	Triethylamine
Packing Group (PG)	II
DOT Pictograms	 

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.
WHMIS Classification (Canada)	WHMIS CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). WHMIS CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). WHMIS CLASS E: Corrosive liquid. On DSL
EINECS Number (EEC)	204-469-4
EEC Risk Statements	R12- Extremely flammable. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R35- Causes severe burns.
Japanese Regulatory Data	ENCS No. 2-141

Section XVI. Other Information

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Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.