TCI AMERICA

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.** **Harmful compound, minimize exposure.** **Lachrymator.** **Readily absorbed through skin.**	

Section I. Chemical Product and Company Identification

Chemical Name: **Dimethylamine (ca. 11% in Methanol, ca. 2.0mol/L)**

Catalog Number	D3292
Synonym	Not available.
Chemical Formula	C_2H_7N
CAS Number	124-40-3

Supplier: TCI America
9211 N. Harborgate St.
Portland OR
1-800-423-8616

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
Dimethylamine (ca. 11% in Methanol, ca. 2.0mol/L)	124-40-3	ca. 11% ca. 89%	Not available.	Rat LD_{50} (oral) 698 mg/kg Mouse LD_{50} (oral) 316 mg/kg Rat LD_{50} (inhalation) 4540 ppm/6H Mouse LD_{50} (inhalation) 4725 ppm/2H (Methanol) Rat LD_{50} (oral) 5600 mg/kg Rabbit LD_{50} (dermal) 15800 mg/kg Rat LD_{50} (inhalation) 64000 ppm/4H

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.
Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury 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.
DEVELOPMENTAL TOXICITY: Reproductive Effects. (Methanol)
Rat TCLo Inhalation 20000 ppm/7 hours, female 1-22 days of pregnancy
TOXIC Effects:
Specific Developmental Abnormalities - Musculoskeletal system
Specific Developmental Abnormalities - Cardiovascular (circulatory) system
Specific Developmental Abnormalities - Urogenital system
Rat TDLo Oral 35295 mg/kg, female 1-15 days of pregnancy
TOXIC Effects:
Effects on Fertility - Female fertility index
Effects on Fertility - Pre-implantation mortality
Effects on Fertility - Post-implantation mortality
Mouse TDLo Oral 4 gm/kg, female 7 days of pregnancy
TOXIC Effects:
Specific Developmental Abnormalities - Craniofacial (including nose and tonge)
Specific Developmental Abnormalities - Musculoskeletal system

Section IV. First Aid Measures

Eye Contact

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

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.

Continued on Next Page ***Emergency phone number (800) 424-9300***

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	400°C (752°F) (Dimethylamine) 464°C (864.2°F) (Methanol)
Flash Points	5°C (41°F). (Dimethylamine) 12°C (53.6°F). (Methanol)	Flammable Limits	LOWER: 2.8% UPPER: 14.4% (Dimethylamine) LOWER: 5.5% UPPER: 44% (Methanol)

Combustion Products: These products are toxic carbon oxides (CO, CO_2), nitrogen oxides (NO_x).

Fire Hazards: Not available.

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.

Fire Fighting Media and Instructions: Flammable liquid.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.
Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release Measures

Spill Cleanup Instructions: Flammable material. Corrosive material. Harmful material. Lachrymatory material. Material is readily absorbed through skin.
Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information: FLAMMABLE. CORROSIVE. HARMFUL. LACHRYMATOR. READILY ABSORBED THROUGH SKIN. Keep container dry. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/vapor/spray. Never add water to this product. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible. Treat symptomatically and supportively.
Always store away from incompatible compounds such as oxidizing agents, reducing agents, alkalis (bases).

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. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.

Exposure Limits: Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Not available.
Specific Gravity	0.824 (water=1) (Dimethylamine) 0.79 (water=1) (Methanol)		
Molecular Weight	C_2H_7N=45.08 (Dimethylamine) CH_3OH=32.04 (Methanol)	Partition Coefficient	Log P_{ow}: -0.2 (Dimethylamine)
Boiling Point	7°C (44.6°F) (Dimethylamine) 64°C (147.2°F) (Methanol)	Vapor Pressure	203 kPa (@ 20°C)
Melting Point	-93°C (-135.4°F) (Dimethylamine) -98°C (-144.4°F) (Methanol)	Vapor Density	1.6 (Air = 1)
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	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, reducing agents, alkalis (bases).

Continued on Next Page

Printed 9/26/2007.

Section XI. Toxicological Information

RTECS Number

IP8750000 (Dimethylamine)
PC1400000 (Methanol)

Routes of Exposure

Eye Contact. Ingestion. Inhalation. Skin contact.

Toxicity Data

Rat LD_{50} (oral) 698 mg/kg
Mouse LD_{50} (oral) 316 mg/kg
Rat LD_{50} (inhalation) 4540 ppm/6H
Mouse LD_{50} (inhalation) 4725 ppm/2H
(Methanol)
Rat LD_{50} (oral) 5600 mg/kg
Rabbit LD_{50} (dermal) 15800 mg/kg
Rat LD_{50} (inhalation) 64000 ppm/4H

Chronic Toxic Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Reproductive Effects. (Methanol)
Rat TCLo Inhalation 20000 ppm/7 hours, female 1-22 days of pregnancy
TOXIC Effects:
Specific Developmental Abnormalities - Musculoskeletal system
Specific Developmental Abnormalities - Cardiovascular (circulatory) system
Specific Developmental Abnormalities - Urogenital system
Rat TDLo Oral 35295 mg/kg, female 1-15 days of pregnancy
TOXIC Effects:
Effects on Fertility - Female fertility index
Effects on Fertility - Pre-implantation mortality
Effects on Fertility - Post-implantation mortality
Mouse TDLo Oral 4 gm/kg, female 7 days of pregnancy
TOXIC Effects:
Specific Developmental Abnormalities - Craniofacial (including nose and tonge)
Specific Developmental Abnormalities - Musculoskeletal system

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.
Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury 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

(Dimethylamine)
Dimethylamine's production and use as a chemical intermediate in the production of dimethylformamide and dimethylacetamide, acid gas absorbent and gasoline stabilizer, may result in its release to the environment through various waste streams. Dimethylamine occurs naturally in many foods and plants and is a volatile component of cigarette smoke and animal waste. If released to air, a vapor pressure of 1,520 mm Hg at 25 deg C indicates dimethylamine will exist solely as a gas in the ambient atmosphere. Gas-phase dimethylamine 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 6 hours. If released to soil, dimethylamine is expected to have moderate mobility based upon an average Koc of 434.9 calculated from data of 5 soils. The pKa of dimethylamine is 10.73, indicating that this compound will exist in the protonated form in the environment and cations generally adsorb to organic carbon and clays more strongly than their neutral counterparts. Volatilization from moist soil surfaces is not expected to be an important fate process because the cation will not volatilize. Dimethylamine may volatilize from dry soil surfaces based upon its vapor pressure. Dimethylamine was biodegraded 69-89% in three Saskatchewan soils during a 7 day incubation period. If released into water, dimethylamine is expected to adsorb to suspended solids and sediment in the water column based upon a Koc of 508 in lake sediment. Dimethylamine is expected to biodegrade in water surfaces based on a half-life of 1.6 days in Vistula River water (Warsaw, Poland) following a 0.3 day lag period. Volatilization from water surfaces is not expected to be an important fate process since this compound is expected to exist in the protonated form in water surfaces at environmental pH. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. Occupational exposure to dimethylamine may occur through inhalation and dermal contact with this compound at workplaces where dimethylamine is produced or used. The general population may be exposed to dimethylamine via ingestion of food and use of tobacco products.
(Methanol)
Methanol's production and use as a solvent, fuel additive, and in the production of formaldehyde, acetic acid, and methyl tertiary butyl ether (MTBE) may result in its release to the environment through various waste streams. Methanol has been identified as a natural emission product from various plants and as a biological decomposition product of biological wastes and sewage. If released to the atmosphere, a vapor pressure of 127 mm Hg at 25 deg C indicates that methanol will exist solely in the vapor phase. Vapor phase methanol is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 17 days. If released to soil, methanol is expected to have very high mobility based upon an estimated Koc of 1. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 4.55X10-6 atm-cu m/mole. Methanol may also volatilize from dry soils based upon it vapor pressure. Biodegradation of methanol in soils is expected to occur rapidly based on half-lives in a sandy silt loam from Texas and a sandy loam from Mississippi of 1 and 3.2 days, respectively. If released into water, methanol is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 3 and 35 days, respectively. Biodegradation is expected to occur in natural waters since methanol is degraded quickly in soils and was biodegraded rapidly in various aqueous screening tests using sewage seed or activated sludge. BCF values of less than 10, measured in fish suggests bioconcentration in aquatic organisms is low. Hydrolysis of methanol and photolysis in sunlit surface waters are not expected since methanol lacks functional groups that are susceptible to hydrolysis or photolysis under environmental conditions. Occupational exposure to methanol may occur through inhalation and dermal contact with this compound at workplaces where methanol is produced or used. Monitoring data indicate that the general population may be exposed to methanol via inhalation of ambient air, and ingestion of food and drinking water.

Continued on Next Page

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local 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 the substance.

Section XIV. Transport Information

DOT Classification	DOT Class 3: Flammable material DOT Class 8: Corrosive material
PIN Number	UN2924
Proper Shipping Name	Flammable liquid, corrosive, n.o.s.
Packing Group (PG)	II
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS E: Corrosive liquid. On DSL
EINECS Number (EEC)	204-697-4 (Dimethylamine) 200-659-6 (Methanol)
EEC Risk Statements	R10- Flammable. R18- In use, may form flammable/explosive vapor-air mixture. R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. R34- Causes burns.
Japanese Regulatory Data	ENCS NO. 2-134 (Dimethylamine) ENCS NO. 2-201 (Methanol)

Section XVI. Other Information

Version 1.0
Validated on 9/26/2007.
Printed 9/26/2007.

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.