

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	Toxic compound, do not ingest or inhale. Avoid all contact with this material. Environmental hazard. This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment. Air and light sensitive material. CARCINOGEN. MINIMIZE EXPOSURE.	   

Section I. Chemical Product and Company Identification

Chemical Name	1-Naphthylamine		
Catalog Number	N0052	Supplier	TCI America 9211 N. Harborage St. Portland OR 1-800-423-8616
Synonym	1-Aminonaphthalene		
Chemical Formula	C ₁₀ H ₉ N		
CAS Number	134-32-7	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
1-Naphthylamine	134-32-7	Min. 99.0 (GC,T)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.	Mouse LD ₅₀ (intraperitoneal) 96 mg/kg

Section III. Hazards Identification

Acute Health Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. 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 : Tumorigenic effects. Rat TDLo Intraperitoneal 1300 mg/kg/13 weeks intermittent TOXIC EFFECTS: Tumorigenic - Equivocal tumorigenic agent by RTECS criteria Blood - Leukemia DEVELOPMENTAL TOXICITY: 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. 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 for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
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	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. 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	May be combustible at high temperature.	Auto-Ignition	460 °C (860 °F)
Flash Points	157 °C (314.6 °F).	Flammable Limits	Not available.
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			

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Emergency phone number (800) 424-9300

SMALL FIRE: Use DRY chemical powder.
 LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.
 Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release Measures

Spill Cleanup Instructions

Toxic material. Environmentally hazardous material. Air and light sensitive material. Carcinogenic material.
 Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. 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

TOXIC. ENVIRONMENTAL HAZARD. AIR AND LIGHT SENSITIVE. CARCINOGEN. Keep locked up.. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe dust. Wear suitable protective clothing. 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.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection

Splash goggles. Lab coat. Dust 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

This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (White ~ reddish white, crystal ~ crystalline powder.)	Solubility	Very soluble in alcohol, ether. Soluble in benzene, dilute acetic acid. Insoluble in water.
Specific Gravity	1.12 (water=1)		
Molecular Weight	143.19	Partition Coefficient	LOG P _{ow} : 2.25
Boiling Point	301 °C (573.8°F)	Vapor Pressure	0.53 Pa (@ 20°C)
Melting Point	50 °C (122°F)	Vapor Density	4.93 (Air = 1)
Refractive Index	1.67034 (@ 51 °C)	Volatility	Not available.
Critical Temperature	Not available.	Odor	Slight ammoniacal.
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. Air and light sensitive.

Incompatibilities

Reactive with oxidizing agents.

Section XI. Toxicological Information

RTECS Number

QM1400000

Routes of Exposure

Eye Contact. Ingestion. Inhalation.

Toxicity Data

Mouse LD₅₀ (intraperitoneal) 96 mg/kg

Chronic Toxic Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Tumorigenic effects.
 Rat TDLo Intraperitoneal 1300 mg/kg/13 weeks intermittent
TOXIC EFFECTS:
 Tumorigenic - Equivocal tumorigenic agent by RTECS criteria
 Blood - Leukemia
DEVELOPMENTAL TOXICITY: 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

Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	1-Naphthylamine's production and use in toning prints made with cerium salts, agricultural chemicals, and as an intermediate in the synthesis of dyes, antioxidants, herbicides, some drugs, and other chemicals may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 4.18X10 ⁻³ mm Hg at 25 deg C indicates 1-naphthylamine will exist solely as a vapor in the ambient atmosphere. Vapor-phase 1-naphthylamine 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 2 hours. 1-Naphthylamine absorbs above 290 nm on the UV spectrum indicating that direct photolysis in the environment is possible. If released to soil, 1-naphthylamine is expected to have low mobility based upon a Koc range of 2,688 to 3,777. Results of a batch equilibrium study with various soils indicated that 1-naphthylamine binds to soil in two phases with an initial rapid and reversible equilibrium established between the amine and the inorganic and organic components of soil followed subsequently by a strong association with the humic fraction of soil via covalent bonding. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 4.6X10 ⁻⁷ atm-cu m/mole. The pKa of 1-naphthylamine is 3.92, indicating that this compound will partially exist in the protonated form in the environment and cations generally adsorb more strongly to organic carbon and clay than their neutral counterparts. At the end of a 200 day experiment, 86% of the 1-naphthylamine incubated in soil had degraded, indicating that biodegradation may occur in the terrestrial environment. If released into water, 1-naphthylamine is expected to adsorb to suspended solids and sediment based upon the Koc values. The rate of biodegradation of 1-naphthylamine in water was found to be 1.4 ug/hr. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's Henry's Law constant. An estimated BCF of 11 suggests the potential for bioconcentration in aquatic organisms is low. Hydrolysis is not expected to be an important environmental fate process since this compound lacks functional groups that hydrolyze under environmental conditions. Occupational exposure to 1-naphthylamine may occur through inhalation and dermal contact with this compound at workplaces where 1-naphthylamine is produced or used. Monitoring data indicate that the general population may be exposed to 1-naphthylamine via contact with contaminated surface or groundwater or by inhalation of cigarette smoke.

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.
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Section XIV. Transport Information

DOT Classification	DOT CLASS 6.1: Toxic material.
PIN Number	UN2077
Proper Shipping Name	alpha-Naphthylamine
Packing Group (PG)	III
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 D-1B: Material causing immediate and serious toxic effects (TOXIC). On DSL.
EINECS Number (EEC)	205-138-7
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R45- May cause cancer. R51- Toxic to aquatic organisms. R53- May cause long-term adverse effects in the aquatic environment.
Japanese Regulatory Data	ENCS No. 4-321

Section XVI. Other Information

Version 1.0
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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.