







# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	<b>EXPLODES WHEN HEATED.</b> Toxic compound, do not ingest or inhale. Avoid all contact with this material. <b>CARCINOGEN. MINIMIZE EXPOSURE.</b> <b>DANGER, MAY CAUSE CANCER.</b> May cause heritable genetic damage.	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>N-Di-n-butylNitrosamine</b>		
Catalog Number	N0375	Supplier	TCI America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	N-Nitrosodi-n-butylamine		
Chemical Formula	(CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> ) <sub>2</sub> NNO		
CAS Number	924-16-3	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
N-Di-n-butylNitrosamine	924-16-3	Min. 95.0 (GC)	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.	Rat LD <sub>50</sub> (oral) 1200mg/kg Rat LD <sub>50</sub> (subcutaneous) 1200mg/kg Hamster LD <sub>50</sub> (oral) 2150mg/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	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic effects. Rat TD (Oral) 12600mg/kg/30 weeks continuous. Toxic effects: Tumorigenic - Equivocal tumorigenic agent by RTECS criteria. Gastrointestinal - Tumors. Kidney, Ureter, and Bladder - Tumors. Hamster TDLo (Subcutaneous) 240 mg/kg (8-15 days of pregnancy). Toxic effects: Tumorigenic - Carcinogenic by RTECS criteria. Tumorigenic effects - Transplacental tumorigenesis. Lung, Thorax, or Respiration - Bronchiogenic carcinoma. <b>DEVELOPMENTAL TOXICITY</b> Reproductive effects. Rat TDLo (Intraperitoneal) 1gm/kg, female 10 days of pregnancy. Toxic effects: Effects on Embryo or Fetus - Fetal death. Hamster TDLo (Subcutaneous) 30mg/kg, female 15 days of pregnancy. Toxic effects: Effects on Newborn - Weaning or lactation index. 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.

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Emergency phone number (800) 424-9300

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. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material.

### Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO, NO <sub>2</sub> ).		
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	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	Explodes when heated. Toxic material. May cause cancer. May cause heritable genetic damage. Carcinogen. 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.
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### Section VII. Handling and Storage

Handling and Storage Information	EXPLODES WHEN HEATED. TOXIC. MAY CAUSE CANCER. MAY CAUSE HERITABLE GENETIC DAMAGE. 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 gas/fumes/vapor/spray. 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 acids.
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### 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	Splash goggles. 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	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.

### Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Yellow, oily.)	Solubility	soluble in water 0.12%, organic solvents and vegetable oils.
Specific Gravity	0.9009 (water=1)		
Molecular Weight	158.24	Partition Coefficient	Not available.
Boiling Point	116°C (240.8°F) @ 14 mm Hg	Vapor Pressure	0.03 mm Hg (@ 20°C)
Melting Point	Not available.	Vapor Density	Not available.
Refractive Index	1.4475 @ 20°C	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 acids, mercury salts, copper salts.

**Section XI. Toxicological Information**

RTECS Number	EJ4025000
Routes of Exposure	Eye Contact. Ingestion. inhalation.
Toxicity Data	Rat LD <sub>50</sub> (oral) 1200mg/kg Rat LD <sub>50</sub> (subcutaneous) 1200mg/kg Hamster LD <sub>50</sub> (oral) 2150mg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic effects. Rat TD (Oral) 12600mg/kg/30 weeks continuous. Toxic effects: Tumorigenic - Equivocal tumorigenic agent by RTECS criteria. Gastrointestinal - Tumors. Kidney, Ureter, and Bladder - Tumors. Hamster TDLo (Subcutaneous) 240 mg/kg (8-15 days of pregnancy). Toxic effects: Tumorigenic - Carcinogenic by RTECS criteria. Tumorigenic effects - Transplacental tumorigenesis. Lung, Thorax, or Respiration - Bronchiogenic carcinoma. <b>DEVELOPMENTAL TOXICITY</b> Reproductive effects. Rat TDLo (Intraperitoneal) 1gm/kg, female 10 days of pregnancy. Toxic effects: Effects on Embryo or Fetus - Fetal death. Hamster TDLo (Subcutaneous) 30mg/kg, female 15 days of pregnancy. Toxic effects: Effects on Newborn - Weaning or lactation index. 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	No information was found on the production or uses of N,N-dibutylNitrosamine (DBN). One source of DBN entry to the environment may be from the leachate of certain types of rubber that were compounded with dialkylamino stabilizers and accelerators. Volatilization may be an important transport process for DBN released to the surface of moist soils. DBN in soil is expected to be relatively mobile and readily transported to groundwater. No information was found on soil biodegradation or hydrolysis. If released to water, DBN will have very little tendency to sorb to biota, suspended sediments, and sediments. Volatilization from water will probably not be significant. Photolysis may be the most significant removal process for DBN in water while hydrolysis is probably not significant. No information was found on DBN biodegradation. A computer estimated half-life for DBN in the vapor phase of the atmosphere is 2.8 days. DBN has been found in cooked fish, pork luncheon meat, the interior of new cars, cigarette smoke, and an aqueous rubber extract.

**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	Not a DOT controlled material (United States).
PIN Number	Not available.
Proper Shipping Name	Not available.
Packing Group (PG)	Not available.
DOT Pictograms	

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA)	This compound is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).
EINECS Number (EEC)	213-101-1
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R45- May cause cancer. R46- May cause heritable genetic damage. R47- May cause birth defects.
Japanese Regulatory Data	Not available.

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 5/15/2001.**  
**Printed 2/26/2005.**

**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.