

# N-Nitroso-N-methylaniline

sc-208051

Material Safety Data Sheet



The Power is Question

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

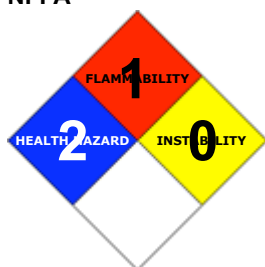
### PRODUCT NAME

N-Nitroso-N-methylaniline

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

### EMERGENCY:

ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255  
(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

C7-H8-N2-O, C6H5N(CH3)N=O, "aniline, N-methyl-N-nitroso", "benzenamine, N-methyl-N-nitroso-", methylnitrosoaniline, N-methyl-N-nitrosoaniline, N-methyl-N-nitrosobenzenamine, N-nitroso-N-methylaniline, methylphenylnitrosamine, MNA, nitrosomethylaniline, NMA, phenylmethylnitrosamine, nitrosamine

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	1		
Toxicity:	2		
Body Contact:	2		
Reactivity:	1		
Chronic:	3		

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4



### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

Harmful if swallowed.  
May cause CANCER.

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

##### EYE

■ Although the liquid is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

##### SKIN

■ The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives .

■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

##### INHALED

■ The material is not thought to produce respiratory irritation (as classified using animal models). Nevertheless inhalation of vapors, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

■ Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

#### CHRONIC HEALTH EFFECTS

■ There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

There is some evidence that human exposure to the material may result in developmental toxicity. This evidence is based on animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects.

Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

Most arylamines are powerful poisons to the blood-making system. High chronic doses cause congestion of the spleen and tumor formation.

N-nitroso compounds cause cancer and mutations in a number of organs, especially the liver.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
N-nitrosomethylphenylamine	614-00-6	>98

## Section 4 - FIRST AID MEASURES

### SWALLOWED

· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. · Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

### EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

### SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

### INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

### NOTES TO PHYSICIAN

■ for poisons (where specific treatment regime is absent):

-----BASIC TREATMENT

- Establish a patent airway with suction where necessary.
  - Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Treat symptomatically.

## Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not available
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	1.124
Lower Explosive Limit (%):	Not available

### EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.

### FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
  - Wear full body protective clothing with breathing apparatus.
- When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

### GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Combustible.
  - Slight fire hazard when exposed to heat or flame.
- Combustion products include: carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), other pyrolysis products typical of burning organic material. May emit poisonous fumes.

### FIRE INCOMPATIBILITY

- Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

### PERSONAL PROTECTION

Glasses:  
Chemical goggles.  
Gloves:  
Respirator:  
Type A Filter of sufficient capacity

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.

### MAJOR SPILLS

- Clear area of personnel and move upwind.
  - Alert Emergency Responders and tell them location and nature of hazard.
- Chemical Class: nitro/ nitroso

For release onto land: recommended sorbents listed in order of priority.

SORBENT TYPE	RANK	APPLICATION	COLLECTION	LIMITATIONS
<b>LAND SPILL - SMALL</b>				
wood fiber - pillow	1	throw	pitchfork	R, P, DGC, RT
sorbent clay - particulate	1	shovel	shovel	R, I, P
foamed glass - pillow	2	throw	pitchfork	R, P, DGC, RT
wood fiber - particulate	3	shovel	shovel	R, W, P, DGC
treated wood fiber - particulate	3	throw	pitchfork	DGC, RT
polypropylene - particulate	4	shovel	shovel	W, SS, DGC
<b>LAND SPILL - MEDIUM</b>				
sorbent clay - particulate	1	blower	skiploader	R, I, P
polypropylene - particulate	1	blower	skiploader	W, SS, DGC
expanded mineral - particulate	2	blower	skiploader	R, I, W, P, DGC
wood fiber - particulate	2	blower	skiploader	R, W, P, DGC, RT
polypropylene- mat	2	blower	skiploader	DGC, RT
foamed glass- particulate	3	blower	skiploader	R, P, DGC, RT

Legend

DGC: Not effective where ground cover is dense

R; Not reusable

I: Not incinerable

P: Effectiveness reduced when rainy

RT: Not effective where terrain is rugged  
SS: Not for use within environmentally sensitive sites  
W: Effectiveness reduced when windy  
Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;  
R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988.

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

### RECOMMENDED STORAGE METHODS

#### ■ Glass container.

- Lined metal can, Lined metal pail/drum
- Plastic pail.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

### STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

### PERSONAL PROTECTION



### RESPIRATOR

Type A Filter of sufficient capacity  
Consult your EHS staff for recommendations

### EYE

- Safety glasses with side shields
- Chemical goggles.

### HANDS/FEET

#### ■ Wear chemical protective gloves, eg. PVC.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.

- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

### OTHER

- Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area.
- Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted.
- Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.
- Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear

clean, impervious garments, including gloves, boots and continuous-air supplied hood.

- Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.

## ENGINEERING CONTROLS

- Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.
- Work should be undertaken in an isolated system such as a "glove-box" . Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.
- Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.
- Open-vessel systems are prohibited.
- Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.
- Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.
- For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
- Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).
- Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.
- Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 150 feet/ min. with a minimum of 125 feet/ min. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Sinks in water.

State	Liquid	Molecular Weight	136.15
Melting Range (°F)	58.46	Viscosity	Not Available
Boiling Range (°F)	437 (decomposes)	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	Not available	pH (1% solution)	Not available
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Not available
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.124
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	4.7
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

### APPEARANCE

Yellow liquid; does not mix well with water.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

### STORAGE INCOMPATIBILITY

- Many arylamines (aromatic amines such as aniline, N-ethylaniline, o-toluidine, xylidine etc. and their mixtures) are hypergolic (ignite spontaneously) with red fuming nitric acid. When the amines are dissolved in triethylamine, ignition occurs at -60 deg. C. or less.
  - Various metal oxides and their salts may promote ignition of amine-red fuming nitric acid systems. Soluble materials such as copper(I) oxide, ammonium metavanadate are effective; insoluble materials such as copper(II) oxide, iron(II) oxide, potassium dichromate are also effective.
  - Many N-nitro compounds show explosive instability arising from low N-N bonding energy.
- BREThERICK L.: Handbook of Reactive Chemical Hazards
- N-nitroso compounds are often sensitive to moisture and light; they may react with water and nucleophilic agents.
  - Alkaline hydrolysis may produce highly explosive gas.
  - Avoid oxidizing agents, acids, acid chlorides, acid anhydrides.

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

N-NITROSOMETHYLPHENYLAMINE

## TOXICITY AND IRRITATION

N-NITROSOMETHYLPHENYLAMINE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50: 225 mg/kg	Nil Reported
Intraperitoneal (rat) LD50: 180 mg/kg	
Oral (hamster) LD50: 150 mg/kg	

■ Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

Gastrointestinal tumours, liver tumours, endocrine tumours, foetolethality, specific developmental abnormalities (eye/ ear, musculoskeletal system) recorded.

Carcinogenic by RTECS criteria.

## Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
N-nitrosomethylphenylamine	HIGH		LOW	MED

## Section 13 - DISPOSAL CONSIDERATIONS

### Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

! Puncture containers to prevent re-use and bury at an authorized landfill.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.

## Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 6.1

Identification Numbers: UN2810 PG: III

Label Codes: 6.1 Special provisions: IB3, T7, TP1, TP28

Packaging: Exceptions: 153 Packaging: Non- bulk: 203

Packaging: Exceptions: 153 Quantity limitations: 60 L

Passenger aircraft/rail:

Quantity Limitations: Cargo 220 L Vessel stowage: Location: A aircraft only:

Vessel stowage: Other: 40

Hazardous materials descriptions and proper shipping names:

Toxic, liquids, organic, n.o.s.

### Air Transport IATA:

ICAO/IATA Class: 6.1 ICAO/IATA Subrisk: None

UN/ID Number: 2810 Packing Group: III

Special provisions: A3

Cargo Only

Packing Instructions: 618 Maximum Qty/Pack: 220 L

Passenger and Cargo Passenger and Cargo

Packing Instructions: 611 Maximum Qty/Pack: 60 L

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: Y611 Maximum Qty/Pack: 2 L

Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S. \*(CONTAINS N-NITROSOMETHYLPHENYLAMINE)

**Maritime Transport IMDG:**

IMDG Class: 6.1 IMDG Subrisk: None

UN Number: 2810 Packing Group: III

EMS Number: F-A , S-A Special provisions: 223 274

Limited Quantities: 5 L

Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S.(contains N-nitrosomethylphenylamine)

## Section 15 - REGULATORY INFORMATION

**N-nitrosomethylphenylamine (CAS: 614-00-6) is found on the following regulatory lists;**

"Canada Non-Domestic Substances List (NDSL)", "US Toxic Substances Control Act (TSCA) - Inventory"

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

- Inhalation and/or skin contact may produce health damage\*.
  - Cumulative effects may result following exposure\*.
  - May be harmful to the foetus/ embryo\*.
- \* (limited evidence).

### ND

Substance CAS Suggested codes N- nitrosomethylphenylamine 614- 00- 6

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- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references).

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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