

N,N-Diisopropyl-3-pentylamine

sc-253137

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,N-Diisopropyl-3-pentylamine

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

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EMERGENCY:

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

PRODUCT USE

Reagent. Extremely hindered tertiary amine.

SYNONYMS

C11-H25-N, [(CH₃)₂CH]₂NCH(CH₂CH₃)₂, "1-ethyl-N, N-diisopropylamine"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

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

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



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Causes burns.
Risk of serious damage to eyes.
Flammable.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Accidental ingestion of the material may be damaging to the health of the individual.
- Amines without benzene rings when swallowed are absorbed throughout the gut. Corrosive action may cause damage throughout the gastrointestinal tract.

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EYE

- The material can produce chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.
- If applied to the eyes, this material causes severe eye damage.
- Vapors of volatile amines irritate the eyes, causing excessive secretion of tears, inflammation of the conjunctiva and slight swelling of the cornea, resulting in "halos" around lights. This effect is temporary, lasting only for a few hours.

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SKIN

- The material can produce chemical burns following direct contact with the skin.
 - Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
 - Volatile amine vapors produce irritation and inflammation of the skin. Direct contact can cause burns.
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- 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

- If inhaled, this material can irritate the throat and lungs of some persons.
- Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.
- Inhalation of amine vapors may cause irritation of the mucous membrane of the nose and throat, and lung irritation with respiratory distress and cough. Swelling and inflammation of the respiratory tract is seen in serious cases; with headache, nausea, faintness and anxiety. There may also be wheezing.
- Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary edema.

CHRONIC HEALTH EFFECTS

- Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.

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

Both secondary amines and tertiary amines can be nitrosated by nitrosating agents to yield nitrosamines. In the case of tertiary amines, the mechanism involves intermediate conversion of the tertiary amine to a secondary amine.

Some types of nitrosamines have been shown to be carcinogenic in tests using laboratory animals. In general, all nitrosamines are presumed to be carcinogenic unless they've been tested and shown to be relatively harmless. Nitrosamines are often generated as undesired byproducts in certain foods (especially bacon) and cosmetic and hygiene products (such as shampoo and hair conditioner).

The occurrence of significant levels of nitrosamines in commercial products is normally not accepted. In formulations which contain nitrosating agents, formation of nitrosamines can become a concern where secondary and/or tertiary amines are used as pH control agents. The most typical nitrosating agents added to formulations are nitrite salts such as sodium or potassium nitrite. Such nitrites are generally added as corrosion inhibitors. Formation of nitrosamine contaminants in such formulations usually results from the reaction of such nitrosating agents with secondary and/or tertiary amines. Nitrosation can occur during product preparation, either during heating or at moderate temperatures. It can also occur while a product sits on a shelf, especially if the product sits for months in a warehouse that becomes warm. Many efforts have been made to eliminate nitrosamines from various substances, or to reduce their concentrations to the lowest practical levels. In various types of food, the use of ascorbic acid (vitamin C) and alpha-tocopherol (vitamin E) and their salts is known to inhibit nitrosamine formation.

In animal experiments the oesophagus is shown to be the most important target organ for nitrosamines, independent of the route of application. The mechanism of this organotrophy cannot be explained sufficiently. The high oesophageal epithelium metabolic activation of nitrosamines, together with a comparatively low DNA repair, probably plays the most important role. In addition chronic stress factors, which lead to high stimulation of epithelial turnover, are a pacemaker for malignant progression. In some countries, the traditional consumption of extremely hot drinks leads to constant burns of the oesophagus, which increases the risk. Mate, a non-alcoholic brew, frequently consumed as tea in Uruguay, appears to be a high risk factor for oesophageal cancer.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
N,N-diisopropyl-3-pentylamine	68714-10-3	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

· For advice, contact a Poisons Information Center or a doctor at once. · Urgent hospital treatment is likely to be needed.

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with 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 or hair contact occurs: · Immediately flush body and clothes with large amounts of water, using safety shower if available. · Quickly remove all contaminated clothing, including footwear.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested. Inhalation of vapors or aerosols (mists, fumes) may cause lung edema. Corrosive substances may cause lung damage (e.g. <p>.

NOTES TO PHYSICIAN

■ For acute or short-term repeated exposures to highly alkaline materials:

· Respiratory stress is uncommon but present occasionally because of soft tissue edema.

· Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung edema often do not manifest until a few hours have passed and they are aggravated by physical effort.

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Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not available
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	0.791
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

· Foam.

· Dry chemical powder.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.

· May be violently or explosively reactive.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 1000 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Liquid and vapor are flammable.

· Moderate fire hazard when exposed to heat or flame.

Combustion products include: carbon dioxide (CO₂), carbon monoxide (CO), nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.

May emit clouds of acrid smoke.

FIRE INCOMPATIBILITY

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

PERSONAL PROTECTION

Glasses:

Safety Glasses.

Full face- shield.

Gloves:

Respirator:

Type AK Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

· Remove all ignition sources.

- Clean up all spills immediately.
 - Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
 - Check regularly for spills and leaks.
- MAJOR SPILLS**
- DO NOT touch the spill material.
 - Clear area of personnel and move upwind.
 - Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Containers, even those that have been emptied, may contain explosive vapours.
- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.

RECOMMENDED STORAGE METHODS

- Packing as supplied by manufacturer. Plastic containers may only be used if approved for flammable liquid.

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- For low viscosity materials (i): Drums and jerricans must be of the non-removable head type. (ii): Where a can is to be used as an inner package, the can must have a screwed enclosure.
- For materials with a viscosity of at least 2680 cSt. (23 deg. C).

STORAGE REQUIREMENTS

- Store in original containers in approved flammable liquid storage area.
- DO NOT store in pits, depressions, basements or areas where vapors may be trapped.
- Store below 38 deg. C.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- N,N-diisopropyl-3-pentylamine: CAS:68714-10-3

PERSONAL PROTECTION



RESPIRATOR

Type AK Filter of sufficient capacity

Consult your EHS staff for recommendations

EYE

- Chemical goggles.
- Full face shield.

HANDS/FEET

- Wear chemical protective gloves, eg. PVC.

- When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

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

- Overalls.

- PVC Apron.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

ENGINEERING CONTROLS

- For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Floats on water.
Corrosive.

State	Liquid	Molecular Weight	171.33
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	159.8- 163.4 (12 mm Hg)	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	120.2	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)	0.791
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

APPEARANCE

Colourless liquid; does not mix well with water. Air-sensitive.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

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

STORAGE INCOMPATIBILITY

- Avoid strong acids.
 - Avoid contact with copper, aluminium and their alloys.
- Avoid reaction with oxidizing agents.
Absorbs CO₂.

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

Section 11 - TOXICOLOGICAL INFORMATION

N,N-DIISOPROPYL-3-PENTYLAMINE

TOXICITY AND IRRITATION

N,N-DIISOPROPYL-3-PENTYLAMINE:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.
- The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

No significant acute toxicological data identified in literature search.

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,N-diisopropyl-3-pentylamine	HIGH		LOW	MED

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information

Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

Disposal Instructions

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

! 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.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 3

Identification Numbers: UN2733 PG: III

Label Codes: 3, 8 Special provisions: B1, IB3, T7, TP1, TP28

Packaging: Exceptions: 150 Packaging: Non- bulk: 203

Packaging: Exceptions: 150 Quantity limitations: 5 L

Passenger aircraft/rail:

Quantity Limitations: Cargo 60 L Vessel stowage: Location: A aircraft only:

Vessel stowage: Other: 40, 52

Hazardous materials descriptions and proper shipping names:

Amine, flammable, corrosive, n.o.s. or Polyamines, flammable, corrosive, n.o.s

Air Transport IATA:

ICAO/IATA Class: 3 ICAO/IATA Subrisk: 8

UN/ID Number: 2733 Packing Group: III

Special provisions: A3

Cargo Only

Packing Instructions: 310 Maximum Qty/Pack: 60 L

Passenger and Cargo Passenger and Cargo

Packing Instructions: 309 Maximum Qty/Pack: 5 L

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: Y309 Maximum Qty/Pack: 1 L

Shipping Name: AMINES, FLAMMABLE, CORROSIVE, N.O.S.

*(CONTAINS N,N-DIISOPROPYL-3-PENTYLAMINE)

Maritime Transport IMDG:

IMDG Class: 3 IMDG Subrisk: 8

UN Number: 2733 Packing Group: III

EMS Number: F-E , S-C Special provisions: 223 274

Limited Quantities: 5 L

Shipping Name: AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.

Section 15 - REGULATORY INFORMATION

No data for N,N-diisopropyl-3-pentylamine (CAS: , 68714-10-3)

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Inhalation, skin contact and/or ingestion may produce health damage*.
- Cumulative effects may result following exposure*.

* (limited evidence).

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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.

- 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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