Material Safety Data Sheet

Diamylamine

Revision Date *27-Jun-2011*

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product Name	**Diamylamine**
Company/Undertaking Identification	**Taminco Inc.** Two Windsor Plaza, Suite 411 7540 Windsor Drive Allentown, PA 18195 (800) 223-3258
Emergency telephone number	In case of emergency call CHEMTREC 1-800-424-9300 703-527-3887 (International Calls), 02-8014-4880 (Australia local calls)

2. HAZARDS IDENTIFICATION

Appearance

Colorless, Clear liquid; Ammoniacal odor

Emergency Overview

- DANGER!
- Combustible liquid
- Corrosive
- Causes skin and eye burns
- Irritating to respiratory system
- May be fatal if inhaled
- May be harmful if swallowed
- Harmful in contact with skin
- The substance is identified as a hazardous chemical according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Principal Routes of Exposure

- Inhalation
- Skin contact
- Eye contact

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
N-(2-methylbutyl)-1-Pentanamine	61361-18-0	50-65
N-Pentyl-1-Pentanamine	2050-92-2	15-30
1-methyl-n-(2-methylbutyl)-1-butanamine	27094-65-1	10-25

4. FIRST AID MEASURES

Ingestion

- Never give anything by mouth to an unconscious person
- Do not induce vomiting without medical advice
- If victim is conscious
- Rinse mouth
- drink 1 or 2 glasses of water
- Prevent aspiration of vomit, if possible
- Seek immediate medical attention/advice

Skin Contact

- Immediately flush skin with running water for 30 minutes or until no traces remain. Wash with soap and water. Remove contaminated clothing immediately.
- Seek immediate medical attention/advice

Eye Contact

- Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 30 minutes.
- Immediate medical attention is required

Inhalation

- Move to fresh air
- If breathing is difficult, give oxygen
- If not breathing, give artificial respiration
- Do not give mouth-to-mouth
- Immediate medical attention is required

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

- Alcohol-resistant foam
- carbon dioxide (CO2)
- dry chemical
- water spray

Specific methods

- In case of fire, stop leak if safe to do so
- Evacuate personnel to safe areas
- Keep product and empty container away from heat and sources of ignition
- Do not allow run-off from fire fighting to enter drains or water courses

Special protective equipment for fire-fighters

- Firefighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent)
- Avoid contact with skin

Specific hazards

- Combustible liquid
- Keep product and empty container away from heat and sources of ignition
- In case of fire hazardous decomposition products may be produced such as
- Carbon monoxide
- Nitrogen oxides (NOx)
- Carbon oxides
- Ammonia

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

- Ventilate the area
- Evacuate personnel to safe areas
- Keep people away from and upwind of spill/leak
- Do not breathe vapors or spray mist
- Eliminate all ignition sources if safe to do so
- Avoid contact with skin, eyes and clothing

Environmental Precautions

- Should not be released into the environment
- Do not flush into surface water or sanitary sewer system

Methods for Clean-up

- Take precautionary measures against static discharges
- Large spills should be collected mechanically (remove by pumping) for disposal
- Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container
- Dispose of as special waste in compliance with local and national regulations

7. HANDLING AND STORAGE

Storage

Technical measures/Precautions

- In accordance with local and national regulations
- Keep away from open flames, hot surfaces and sources of ignition
- Keep containers tightly closed in a dry, cool and well-ventilated place
- Protect containers from physical damage

Incompatible products

- Strong acids and oxidizing agents

Handling

Technical measures/Precautions

- In accordance with local and national regulations
- Use only in area provided with appropriate exhaust ventilation

Safe handling advice

- Ensure adequate ventilation
- Avoid breathing vapors or mists
- Use only in area provided with appropriate exhaust ventilation
- In case of insufficient ventilation, wear suitable respiratory equipment
- Avoid contact with skin, eyes and clothing
- Wear personal protective equipment
- Ground and bond containers when transferring material
- Do not use sodium nitrite or other nitro sating agents in product
- Empty containers retain product residue and may be hazardous
- Wash thoroughly after handling

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL
N-(2-methylbutyl)-1-Pentanamine	Not listed	None Established
N-Pentyl-1-Pentanamine	Not listed	None Established
1-methyl-n-(2-methylbutyl)-1-butanamine	Not listed	None Established

Respiratory Protection

- In accordance with local and national regulations
- The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace
- In case of insufficient ventilation wear suitable respiratory equipment
- a respirator with filter for organic vapor
- In case of higher concentration
- wear a positive-pressure supplied-air respirator with full facepiece
- self-contained breathing apparatus

Engineering measures

- Local exhaust
- Use explosion-proof equipment

Personal Protective Equipment

Eye Protection

- Face-shield
- Chemical resistant goggles must be worn
- Ensure that eyewash stations and safety showers are close to the workstation location

Hand protection

- Impervious gloves
- Choose body protection according to the amount and concentration of the dangerous substance at the work place

Skin Protection

- Solvent-resistant apron and boots
- Wear fire/flame resistant/retardant clothing
- Choose body protection according to the amount and concentration of the dangerous substance at the work place

Environmental exposure controls

- Do not allow material to contaminate ground water system
- Avoid subsoil penetration

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

Physical State	Liquid
Color	Colorless
Odor	Ammoniacal

Important Health Safety and Environmental Information

Boiling Point/Range	185 - 205°C 365 - 401°F
Flash Point	67°C 153°F
Viscosity	Not available
Vapor Pressure	0.8 mmHg @ 20 °C
Partition Coefficient (n-octanol/water)	No information available
pH	No information available
Water solubility	Not available
Oxidizing Properties	Not applicable
Explosion Limits	
Explosive Properties	8.63 - 47 vol. %
Melting Point/Range	No data available
Density	0.77 g/cm3 @ 20 °C

Autoignition Temperature 263°C
505°F

Flammability Limits in Air
lower flammability limit 8.63 vol. %
upper flammability limit 47 vol. %

10. STABILITY AND REACTIVITY

Stability
- Stable under normal conditions

Conditions to Avoid
- Keep away from open flames, hot surfaces and sources of ignition
- Materials to avoid
- Oxidizing agents
- Mineral acid
- organic acids
- Do not use sodium nitrite or other nitro sating agents in product

Hazardous Decomposition Products
- Thermal decomposition can lead to release of irritating gases and vapours
- Carbon monoxide
- Carbon dioxide (CO_2)
- nitrogen oxides (NOx)
- Ammonia

Hazardous Polymerization Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Eye Contact Corrosive to the eyes and may cause severe damage including blindness. Causes eye burns. May cause a perception of a "blue haze" or "fog" around lights. Vapors irritating to eyes and respiratory tract.

Skin Contact Causes skin burns. Corrosive to rabbits. Harmful by skin absorption.

Inhalation May be fatal if inhaled. Inhalation may cause severe mucous membrane and respiratory irritation, shortness of breath and pulmonary edema. Vapors may have a strong offensive odor which may cause headaches, nausea, and vomiting.

Ingestion If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach. Toxic if swallowed.

Chronic Effects None known.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	IARC	ACGIH	OSHA	NTP
N-(2-methylbutyl)-1-Pentanamine	Not Listed	Not Listed	Not Listed	Not Listed
N-Pentyl-1-Pentanamine	Not Listed	Not Listed	Not Listed	Not Listed
1-methyl-n-(2-methylbutyl)-1-butanamine	Not Listed	Not Listed	Not Listed	Not Listed

Aggravated Medical Conditions Eye disease. Skin disorders. Respiratory disorders. asthma.

Product Information

LD50/oral/rat =	86 - 270 mg/kg
LD50/dermal/rabbit =	270 - 900 mg/kg
LC50/inhalation/4h/rat =	374 mg/m³
Eye irritation	Corrosive
Skin irritation	Corrosive

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxicity to fish	No information available
EC50/48h/daphnia =	23 mg/l
LC50/96h/algae =	2.7 mg/l
Toxicity to bacteria	- > 1000 mg/l

Mobility

No information available

Persistence and Degradability

no data available

Bioaccumulative Potential

no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods	Dispose of in accordance with local regulations
Contaminated Packaging	In accordance with local and national regulations. Empty containers retain product residue and may be hazardous. Empty containers should be taken for local recycling, recovery or waste disposal.

14. TRANSPORT INFORMATION

DOT

Shipping Description	UN2922, Corrosive liquids, toxic, n.o.s. (Diamylamine), 8(6.1), PG I
Hazard Class	8
Subsidiary Class	6.1
UN-No	UN2922
Packing Group	I
Reportable Quantity (RQ)	None
Marine Pollutant	No
Labelling	Corrosive and toxic

IMDG/IMO

Shipping Description	UN2922, Corrosive liquids, toxic, n.o.s. (Diamylamine), 8(6.1), PG I

Hazard Class	8
Subsidiary Class	6.1
UN-No	UN2922
Packing Group	I
Marine Pollutant	No
Labelling	Corrosive and toxic

IATA

UN-No	UN2922
Shipping Description	UN2922, Corrosive liquids, toxic, n.o.s. (Diamylamine), 8(6.1), PG I
Hazard Class	8
Subsidiary Class	6.1
Packing Group	I
Labelling	Corrosive and toxic

15. REGULATORY INFORMATION

International Inventories

All of the components in the product are on the following Inventory lists: U.S.A. (TSCA), Canada (DSL/NDSL), Japan (ENCS), Korea (KECL).

NOTE: X = Listed

Chemical Name	TSCA	EINECS	DSL	ENCS	MITI	AICS	PICCS	IECSC	KECL	NZIoC
N-(2-methylbutyl)-1-Pentanamine	X		NDSL - Listed	(2)-3150					KE-28101	
N-Pentyl-1-Pentanamine	X	2181083	X	(2)-3149			X	X	KE-12036	X
1-methyl-n-(2-methylbutyl)-1-butanamine	X	2482208	NDSL - Listed	(2)-3151					KE-03273	

OSHA HAZARD CLASSIFICATION: This material is classified as hazardous under Federal OSHA regulation: Highly toxic, Corrosive, Combustible liquid

SARA 311/312 Hazardous Categorization
Acute Health Hazard, Fire Hazard

SARA TITLE III SECTION 313 INFORMATION:
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

NOTE: X = Listed

CERCLA Hazardous Substances
This product does not contain any RQs or TPQs under this regulation.

State Right-to-Know

NOTE: X = Listed

Chemical Name	PA	NJ	MA
N-(2-methylbutyl)-1-Pentanamine 61361-18-0	Not Listed	Not Listed	Not Listed

Chemical Name	PA	NJ	MA
N-Pentyl-1-Pentanamine 2050-92-2	X	X	X
1-methyl-n-(2-methylbutyl)-1-butanamine 27094-65-1	Not Listed	Not Listed	Not Listed

California Proposition 65 This product does not contain any Proposition 65 chemicals.

WHMIS Hazard Class
B3 Combustible liquid
D1A Very toxic materials
E Corrosive material

Canadian Environmental Protection Act This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

16. OTHER INFORMATION

HMIS	**Health** 3	**Flammability** 2	**Physical Hazard** 0
NFPA	**Health** 3	**Fire** 2	**Instability** 0

Legend: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Disclaimer: The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet