# OTTO CHEMIE PVT LTD

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----------ISO 9001: 2015----------

## MATERIAL SAFETY DATA SHEET

1.Identification
1.1GHS Product identifier
Dibutylamine, puriss, 99%
Code D 1460

2.Hazard identification
2.1Classification of the substance or mixture
Flammable liquids, Category 3
Acute toxicity - Oral, Category 4
Acute toxicity - Dermal, Category 4
Acute toxicity - Inhalation, Category 4
2.2GHS label elements, including precautionary statements
Pictogram(s)

| | |
|---|---|
| Signal word | Warning |
| Hazard statement(s) | H226 Flammable liquid and vapour<br>H302 Harmful if swallowed<br>H312 Harmful in contact with skin<br>H332 Harmful if inhaled |
| Precautionary statement(s) | |
| Prevention | P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.<br>P233 Keep container tightly closed.<br>P240 Ground and bond container and receiving equipment.<br>P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.<br>P242 Use non-sparking tools.<br>P243 Take action to prevent static discharges.<br>P280 Wear protective gloves/protective clothing/eye protection/face protection.<br>P264 Wash ... thoroughly after handling.<br>P270 Do not eat, drink or smoke when using this product.<br>P261 Avoid breathing dust/fume/gas/mist/vapours/spray.<br>P271 Use only outdoors or in a well-ventilated area. |
| Response | P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].<br>P370+P378 In case of fire: Use ... to extinguish.<br>P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/\u2026if you feel unwell.<br>P330 Rinse mouth.<br>P302+P352 IF ON SKIN: Wash with plenty of water/...<br>P312 Call a POISON CENTER/doctor/\u2026if you feel unwell.<br>P321 Specific treatment (see ... on this label).<br>P362+P364 Take off contaminated clothing and wash it before reuse.<br>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| Storage | P403+P235 Store in a well-ventilated place. Keep cool. |
| Disposal | P501 Dispose of contents/container to ... |

2.3Other hazards which do not result in classification
none

3.Composition/information on ingredients
3.1Substances

| Chemical name | Common names and synonyms | CAS number | EC number | Concentration |
|---|---|---|---|---|
| Dibutylamine | Dibutylamine | 111-92-2 | none | 100% |

4.First-aid measures
4.1Description of necessary first-aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.
In case of skin contact
Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .
In case of eye contact
First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
If swallowed
Rinse mouth. Do NOT induce vomiting. Refer for medical attention .
4.2Most important symptoms/effects, acute and delayed
Inhalation causes irritation of nose, throat, and lungs; coughing; nausea; headache. Ingestion causes irritation of mouth and stomach. Contact with eyes causes irritation. Contact with skin causes irritation and dermatitis. (USCG, 1999)
4.3Indication of immediate medical attention and special treatment needed, if necessary
Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... . Monitor for shock and treat if necessary ... . Anticipate seizures and treat if necessary ... . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport ... . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patent can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal ... . Cover skin burns with dry sterile dressings after decontamination ... . /Organic bases/amines and related cmpds/

5.Fire-fighting measures
5.1Extinguishing media
Suitable extinguishing media
Use water spray, dry chemical, foam, or carbon dioxide. Use water spray to keep fire-exposed containers cool.
5.2Specific hazards arising from the chemical
Special Hazards of Combustion Products: Toxic oxides of nitrogen may form in fires. (USCG, 1999)
5.3Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures
6.1Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.
6.2Environmental precautions
Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Cautiously neutralize remainder.
6.3Methods and materials for containment and cleaning up
Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7.Handling and storage
7.1Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.
7.2Conditions for safe storage, including any incompatibilities
Fireproof. Separated from strong oxidants, acids and food and feedstuffs.Separate from oxidizing materials, acids, and sources of halogens. Store in a cool, dry, well-ventilated location. Outside or detached storage is peferred.

8.Exposure controls/personal protection
8.1Control parameters
Occupational Exposure limit values
no data available
Biological limit values
no data available
8.2Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
8.3Individual protection measures, such as personal protective equipment (PPE)
Eye/face protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Respiratory protection
Wear dust mask when handling large quantities.
Thermal hazards
no data available

9.Physical and chemical properties

| | |
|---|---|
| Physical state | Clear liquid |
| Colour | Liquid |
| Odour | AMMONIA-LIKE ODOR |
| Melting point/ freezing point | -62\u00baC |
| Boiling point or initial boiling point and boiling range | 159\u00baC |
| Flammability | Flammable. Gives off irritating or toxic fumes (or gases) in a fire. |
| Lower and upper explosion limit / flammability limit | LOWER FLAMMABLE LIMIT: 1.1% BY VOLUME; UPPER FLAMMABLE LIMT: NOT ESTABLISHED. |
| Flash point | 39\u00baC |
| Auto-ignition temperature | 260\u00b0C |
| Decomposition temperature | no data available |
| pH | no data available |
| Kinematic viscosity | no data available |
| Solubility | In water:4.05 g/L (25 \u00baC) |
| Partition coefficient n-octanol/water (log value) | log Kow= 2.83 |
| Vapour pressure | 1.9 mm Hg ( 20 \u00b0C) |
| Density and/or relative density | 0.762 |
| Relative vapour density | 4.46 (vs air) |
| Particle characteristics | no data available |

10.Stability and reactivity
10.1Reactivity
no data available
10.2Chemical stability
Stable under recommended storage conditions.
10.3Possibility of hazardous reactions
FLAMMABLE LIQUID WHEN EXPOSED TO HEAT OR FLAME ... .DI-N-BUTYLAMINE neutralizes acids in exothermic reactions to form salts plus water. May be incompatible with isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides. Flammable gaseous hydrogen may be generated in combination with strong reducing agents, such as hydrides.
10.4Conditions to avoid
no data available
10.5Incompatible materials
... CAN REACT WITH OXIDIZING MATERIALS.
10.6Hazardous decomposition products
When heated to decomp it emits toxic fumes of /nitrogen oxides/.

11.Toxicological information
Acute toxicity
Oral: LD50 Rat oral 220 mg/kg
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation
no data available
Serious eye damage/irritation
no data available
Respiratory or skin sensitization
no data available
Germ cell mutagenicity
no data available
Carcinogenicity
no data available
Reproductive toxicity
no data available
STOT-single exposure
no data available
STOT-repeated exposure
no data available
Aspiration hazard
no data available

12.Ecological information
12.1Toxicity
Toxicity to fish: no data available
Toxicity to daphnia and other aquatic invertebrates: no data available
Toxicity to algae: no data available
Toxicity to microorganisms: no data available
12.2Persistence and degradability

In a screening study, dibutylamine completely degraded within 14 days at 10 ppm with both an activated sludge and freshwater sediment inoculum(1). BOD values obtained during this time period indicated that mineralization was essentially complete(1). River mud bacteria and activated sludge were inhibited by 50 and 100 ppm dibutylamine, respectively(1). In another study that utilized 100 ppm of dibutylamine and an activated sludge inoculum, no oxygen consumption was observed until about three days when the BOD increased sharply to about 30% of theoretical biological oxygen demand(2). Another screening test resulted in >90% degradation in 9 days including a 4 day lag period(3). While low concns of the free diamine were degraded in 10 hours by acclimated mixed cultures, only 25% of the dibutylamine adsorbed on bentonite clay was degraded in this time(5). The sorbed diamine degraded in 2 days(5). The rate of degradation of the sorbed molecule does not depend on its desorption rate, but rather may be due to restricted access by microorganisms(5). Under anaerobic conditions with high nitrate loads (denitrification conditions), dibutylamine shows little tendency to form nitrosamines(4). 94-97% of the theoretical BOD was achieved for dibutylamine using an activated sludge during a 4 week incubation period(6).

12.3Bioaccumulative potential

An estimated BCF of 30 was calculated for dibutylamine(SRC), using a log Kow of 2.83(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is moderate(SRC).

12.4Mobility in soil

The Koc of dibutylamine was estimated as 825(SRC), using a log Kow of 2.83(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that dibutylamine is expected to have low mobility in soil(SRC). The pKa of dibutylamine is 11.73(4), indicating that the protonated form will be the predominant species in moist soils and cations are expected to adsorb strongly to soil surfaces.

12.5Other adverse effects

no data available

13.Disposal considerations

13.1Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information

14.1UN Number

ADR/RID: UN2248 IMDG: UN2248 IATA: UN2248

14.2UN Proper Shipping Name

ADR/RID: DI-n-BUTYLAMINE

IMDG: DI-n-BUTYLAMINE

IATA: DI-n-BUTYLAMINE

14.3Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA: 8

14.4Packing group, if applicable

ADR/RID: II IMDG: II IATA: II

14.5Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6Special precautions for user

no data available

14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15.Regulatory information

15.1Safety, health and environmental regulations specific for the product in question

| Chemical name | Common names and synonyms | CAS number | EC number |
|---|---|---|---|
| Dibutylamine | Dibutylamine | 111-92-2 | none |
| European Inventory of Existing Commercial Chemical Substances (EINECS) | | | Listed. |
| EC Inventory | | | Listed. |
| United States Toxic Substances Control Act (TSCA) Inventory | | | Listed. |
| China Catalog of Hazardous chemicals 2015 | | | Listed. |
| New Zealand Inventory of Chemicals (NZIoC) | | | Listed. |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS) | | | Listed. |
| Vietnam National Chemical Inventory | | | Listed. |
| Chinese Chemical Inventory of Existing Chemical Substances (China IECSC) | | | Listed. |

**Section 16: Other Information**

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all

precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.