

Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Diethylamine

Reference number(SDS):33465jis_E-3

Product type:

Reagent

Recommended use of the chemical and restrictions on use

Recommended uses: Research and Development

Restrictions on uses: Do not use for other purposes.

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

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Division: Quality Assurance Department

Telephone number: +81-48-986-6161

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Section 2. Hazards identification

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Flammable liquids: Category 2

HEALTH HAZARDS

Acute toxicity (Oral): Category 3

Acute toxicity (Dermal): Category 3

Acute toxicity (Inhalation): Category 4

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Specific target organ toxicity – single exposure: Category 1 (respiratory organs)

Specific target organ toxicity – repeated exposure: Category 1 (respiratory organs)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 3

(Note) GHS classification without description: Not classified/Classification not possible

Label elements

Hazard pictograms:



Signal word: Danger

Hazard statements

H225-Highly flammable liquid and vapor

H301-Toxic if swallowed

H311-Toxic in contact with skin

H332-Harmful if inhaled

Diethylamine, JUNSEI CHEMICAL CO., LTD., 33465jis_E-3, 06/Jul/2026

H314–Causes severe skin burns and eye damage

H318–Causes serious eye damage

H370–Causes damage to organs

H372–Causes damage to organs through prolonged or repeated exposure

H402–Harmful to aquatic life

Precautionary statements

Prevention

Avoid release to the environment.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep container tightly closed.

Ground and bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use non-sparking tools.

Take action to prevent static discharges.

Do not breathe vapors.

Use only outdoors or in a well-ventilated area.

Wash hands thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Wash hands thoroughly after handling. Do not touch eyes.

Do not eat, drink or smoke when using this product.

Response

In case of fire: Use water mist, alcohol-resistant foam, dry powder, CO2 to extinguish.

Specific treatment.

IF exposed or concerned: Get emergency medical help immediately.

Get emergency medical help immediately.

Get medical help.

Get medical help if you feel unwell.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF ON SKIN: Wash with plenty of water.

IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water or shower.

Wash contaminated clothing before reuse.

Take off immediately all contaminated clothing and wash it before reuse.

IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Rinse mouth.

IF SWALLOWED: Get emergency medical help immediately.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

Store in a well-ventilated place. Keep cool.

Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Specific danger/hazard

Physical and Chemical hazards

Highly flammable liquid. Vapor/air mixture may explode.

Section 3. Composition/information on ingredients

Substance/mixture:

Substance

Ingredient name: Diethylamine

Content (%): 98.0 <

Chemical formula: C₄H₁₁N

ENCS: 2-135

CAS No.: 109-89-7

MW: 73.14

EC No.: 203-716-3

Note : The figures shown above are not the specifications of the product.

Section 4. First aid measures

Descriptions of first aid measures

General measures

IF exposed or concerned: Get emergency medical help immediately.

Keep victim warm and quiet.

Call emergency medical service.

Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

IF INHALED

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Give artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

IF INHALED: Get medical help.

IF ON SKIN

IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.

IF ON SKIN: Wash with plenty of water.

In case of burns, immediately cool affected skin for as long as possible with cold water.

Do not remove clothing if adhering to skin.

Get emergency medical help immediately.

Remove and isolate contaminated clothing and shoes.

IF IN EYES

IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical help.

IF SWALLOWED

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF SWALLOWED: Get emergency medical help immediately.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Sore throat. Cough. Shortness of breath. Burning sensation. Abdominal pain. Diarrhoea.

Vomiting. Shock or collapse.

※Symptoms may be delayed.

(Symptoms when skin and/or eye contact)

Redness. Pain. Burns. Blisters.

Indication of any immediate medical attention and special treatment needed

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.

Immediate administration of an appropriate inhalation therapy by a doctor, or by an authorized person, should be considered.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use water mist, alcohol-resistant foam, dry powder, CO2 to extinguish.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters

Special extinguishing method

Evacuate non-essential personnel to safe area.

Apply water from a safe distance to cool and protect surrounding area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFETY: Ventilate closed spaces before entering.

Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.

Do not touch or walk through spilled material.

Environmental precautions

Runoff to sewer may create fire or explosion hazard.

Vapor explosion hazard indoors, outdoors or in sewers.

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, etc.), then place in a chemical waste container.

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Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

Use clean non-sparking tools to collect absorbed material.

All equipment used when handling the product must be grounded.

Collect leaking liquid in sealable plastic containers.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

Prevent entry into waterways, sewers, basements or confined areas.

Keep out of low areas.

Reference to other sections

Refer to section 8

Refer to section 13

Section 7. Handling and storage

Engineering measures

(Measures to prevent operator exposure)

Do not breathe vapors.

(Measures to prevent fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Ground and bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use non-sparking tools.

Take action to prevent static discharges.

(Local ventilation/general ventilation)

Exhaust/ventilator should be available.

(Precautions)

Avoid contact with skin.

Avoid contact with eyes.

Advice on safe handling

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Avoidance of contact

See Section 10: Stability and Reactivity.

Advice on general occupational hygiene

Do not get in eyes, on skin, or on clothing.

Wash hands thoroughly after handling. Do not touch eyes.

Do not eat, drink or smoke when using this product.

Take off immediately all contaminated clothing and wash it before reuse.

Conditions for safe storage

Keep container tightly closed. Keep cool.

Store in accordance with local/regional/national/international regulations regulation.

Store locked up.

Protect from sunlight. Store in a well-ventilated place.

Incompatible substances

Refer to Section 10. Stability and reactivity.

Container and packaging materials for safe handling data is not available.

Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

Section 8. Exposure controls/personal protection

Permissible concentration

Control value and Concentration standard value under ISHA

Concentration standard value TWA: 5ppm; STEL: 15pm

Occupational exposure limit values

JSOH

10ppm; 30mg/m³

ACGIH

TWA: 5ppm; STEL: 15ppm (URT, eye & skin irr)

Notation

Skin

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures, such as personal protective equipment

Respiratory protection

Select and wear respiratory protection in accordance with approved standards (e.g. JIS T8150).

Recommended respiratory protection: Self-Contained Breathing Apparatus (SCBA)

Hand protection

Wear protective gloves.

Inspect before use and replace worn or damaged gloves.

Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

Chemical-resistant, impervious gloves complying with an approved standard (e.g. JIS T8116) should be used.

Eye/face protection

Wear chemical safety goggle.

Wear eye/face protection in accordance with approved standards (e.g. JIS T8147).

Skin and body protection

Wear impervious clothing and boots in case of repeated or prolonged treatment.

Personal protective equipment for the body and skin should be selected based on the task being performed and the risks involved.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless

Odor: Irritant odor

Odor threshold data is not available.

Melting point/Freezing point: -50°C

Boiling point or initial boiling point and boiling range: 55.5°C

Flammability: Ignitable

Lower and upper explosion limit:

Lower explosion limit: 1.8 vol %

Upper explosion limit: 10.1 vol %

Flash point: $-28^{\circ}\text{C}(\text{C.C.})$

Auto-ignition temperature: 312°C

Decomposition temperature data is not available.

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH data is not available.

Dynamic viscosity: $0.319\text{mPa}\cdot\text{s}(25^{\circ}\text{C})$

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Miscible

Solubility in solvent: Soluble in ether and carbon tetrachloride.

Partition coefficient n-octanol/water (log value): 0.58

Vapor pressure: 25.9 kPa (20°C)

Vapor density data is not available.

Density and/or relative density: $0.702\sim 0.708\text{ g/mL}(20^{\circ}\text{C})$

Relative vapor density (Air=1): 2.5

Relative density of the Vapor/air – mixture at 20°C (Air = 1): 1.4

Particle characteristics data is not available.

Other information

Critical temperature data is not available.

Evaporation rate data is not available.

VOC data is not available.

Section 10. Stability and Reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions.

Flammable.

Possibility of hazardous reactions

The vapour is heavier than air and may travel along the ground; distant ignition possible.

Decomposes on heating or on burning. This produces toxic fumes.

Reacts with strong oxidants, acids and organic compounds. This generates fire or explosion hazard.

Attacks metal, some forms of plastic, rubber and coatings.

Conditions to avoid

Avoid direct sunlight, fire, flame, high temperature.

Contact with incompatible materials.

Incompatible materials

Acids. Strong oxidizing agents. Organic compounds.

Hazardous decomposition products

Carbon oxides. Nitrogen oxides. Ammonia. Hydrogen cyanide.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

Category 3, Toxic if swallowed

[Data for components of the product]

[NITE-CHRIP]

rat LD50: 108 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Product]

Category 3, Toxic in contact with skin

[Data for components of the product]

[NITE-CHRIP]

rabbit LD50: 580 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Product]

Category 4, Harmful if inhaled

[Data for components of the product]

[NITE-CHRIP]

vapor: rat LC50: 4000 ppm (4-hour) (source: NITE)

Skin corrosion/irritation

[Product]

Category 1, Causes severe skin burns and eye damage

[Data for components of the product]

[NITE-CHRIP]

Category 1 (source: NITE)

Serious eye damage/irritation

[Product]

Category 1, Causes serious eye damage

[Data for components of the product]

[NITE-CHRIP]

Category 1 (source: NITE)

Respiratory or skin sensitization

Respiratory sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Skin sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Germ cell mutagenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Carcinogenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

[ACGIH]

A4: Not Classifiable as a Human Carcinogen

Reproductive toxicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Specific target organ toxicity – single exposure

[Product]

Category 1, Causes damage to organs

[Data for components of the product]

[NITE-CHRIIP]

Category 1 (respiratory organs) (source: NITE)

Specific target organ toxicity – repeated exposure

[Product]

Category 1, Causes damage to organs through prolonged or repeated exposure

[Data for components of the product]

[NITE-CHRIIP]

Category 1 (respiratory organs) (source: NITE)

Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Section 12. Ecological Information

Ecotoxicity

Aquatic toxicity

[Product]

Category 3, Harmful to aquatic life

[Data for components of the product]

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Hazardous to the aquatic environment, short-term (acute)

[NITE-CHRIIP]

Fish (*Oryzias latipes*) 96-hour LC50: 27 mg/L (source: NITE)

Water solubility

[Data for components of the product]

miscible (source: ICSC, 2008)

Persistence and degradability

[Data for components of the product]

Rapidly degradable (Degradation rate: 89% (by BOD)) (source: NITE)

Bioaccumulative potential

[Data for components of the product]

log Pow: 0.58 (source: NITE)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Waste treatment methods

Waste from residues

Disposal should be in accordance with local, national, and international laws and regulations.

Comply with relevant laws and regulations as well as local municipal standards.

Avoid release to the environment.

Do not dump into sewers, on the ground or into any body of water.

Contaminated packing

Disposal should be in accordance with local, national, and international laws and regulations.

Comply with relevant laws and regulations as well as local municipal standards.

Dispose of container after using the contents completely.

Section 14. Transport Information

UNRTDG

UN number : UN1154

UN Proper Shipping Name : DIETHYLAMINE

Transport hazard class(es) : 3

Subsidiary hazard(s) : 8

Packing group : II

IMDG Code (International Maritime Dangerous Goods Regulations)

UN number : UN1154

UN Proper Shipping Name : DIETHYLAMINE

Transport hazard class(es) : 3

Subsidiary hazard(s) : 8

Packing group : II

IATA (Dangerous Goods Regulations)

UN number : UN1154

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UN Proper Shipping Name : DIETHYLAMINE

Transport hazard class(es) : 3

Subsidiary hazard(s) : 8

Hazard labels : Flamm. liquid & Corrosive

Packing group : II

Environmental hazards

Marine pollutants (yes/no) : no

Maritime transport in bulk according to IMO instruments

MARPOL Annex II – Noxious Liquid Substances

Noxious Liquid Substances ; Cat. Y

Diethylamine

MARPOL Annex V – HME (Harmful to the Marine Environment)

Specific target organ toxicity – repeated exposure: cat.1

Diethylamine

ERG GUIDE No.: 132

Section 15. Regulatory Information

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

109-89-7

All components are listed or exempted.

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

Section 16. Other information

GHS classification and labelling

H225-Flammable liquids, Category 2: H225 Highly flammable liquid and vapor

H301-Acute toxicity, Category 3: H301 Toxic if swallowed

H311-Acute toxicity, Category 3: H311 Toxic in contact with skin

H332-Acute toxicity, Category 4: H332 Harmful if inhaled

H314-Skin corrosion/irritation, Category 1: H314 Causes severe skin burns and eye damage

H318-Serious eye damage/eye irritation, Category 1: H318 Causes serious eye damage

H370-Specific target organ toxicity – single exposure, Category 1: H370 Causes damage to organs

H372-Specific target organ toxicity – Repeated exposure, Category 1: H372 Causes damage to organs through prolonged or repeated exposure

H402-Hazardous to the aquatic environment, short-term (acute), Category 3: H402 Harmful to aquatic life

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 23rd edit., 2023 UN
IMDG Code, 2024 Edition (Incorporating Amendment 42–24)
IATA Dangerous Goods Regulations (67th Edition) 2026
2024 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2026 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2025
JIS Z 7253 : 2025
Recommendation of occupational exposure limits (2024–2025) (JSOH)
Notification No. 0111–1 (January 11, 2022), Chemical Hazards Control Division, Industrial
Safety and Health Department, Labour Standards Bureau, MHLW in Japan
Supplier's data/information
Chemicals safety data management system "GHS Assistant" Version 4.39
(<https://www.asahi-ghs.com/>)
NITE Chemical Risk Information Platform "NITE-CHRIIP"
(https://www.chem-info.nite.go.jp/en/chem/chrip/chrip_search/systemTop)
GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.1) (May. 2024, METI)

Abbreviations and acronyms

ACGIH – American Conference of Governmental Industrial Hygienists;
anh – anhydride;
ATE – Acute Toxicity Estimate;
BCF – Bioconcentration Factor;
BOD – Biochemical Oxygen Demand;
Cat. – Category;
Ceiling-C – Ceiling value;
COD – Chemical Oxygen Demand;
CSCL – Chemical Substances Control Law in Japan;
DSEN – Dermal Sensitization;
EC No. – The European Community number;
EC50 – Effective Concentration 50;
ENCS – Existing and New Chemical Substances Inventory under CSCL
EPA – US Environmental Protection Agency;
EU – European Union;
GHS – Globally Harmonized System of Classification and Labelling of Chemicals;
IARC – International Agency for Research on Cancer;
IATA – International Air Transport Association;
IBC Code – International Code for the Construction and Equipment of Ships carrying
Dangerous Chemicals in Bulk;
IMDG Code – International Maritime Dangerous Goods Code;
ISHA – Industrial Safety and Health Act in Japan;
JSOH – Japan Society for Occupational Health;
LC50 – Lethal Concentration 50;
LD50 – Lethal Dose 50;
logPow – n-Octanol/water Partition Coefficient;
MARPOL – International Convention for the Prevention of Pollution from Ships;
METI – Ministry of Economy, Trade and Industry in Japan;
MHLW – Ministry of Health, Labour and Welfare in Japan;
MOE – Ministry of the Environment in Japan

NOEC – No Observed Effect Concentration;

NTP – US National Toxicology Program;

REACH – Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No.1907/2006;

RSEN – Respiratory Sensitization;

Skin – Danger of cutaneous absorption;

STEL – Short-term Exposure Limit;

STOT – Specific target organ toxicity;

SVHC – Substance of Very High Concern under REACH;

TWA – time-weighted average;

UN – United Nations;

UNRTDG – United Nations Recommendations on the Transport of Dangerous Goods;

General Disclaimer

The information relates to this specific material. It may not be valid for this material, if used in combination with any other materials or in any process. It is the user's responsibility to satisfy him-selves as to the suitability and completeness of this information for his own particular use.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIP), up to FY2024).