

Safety Data Sheet

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

Product identifier:

Product name: Nitrobenzene

Reference number(SDS):54395jis_E-3

Product type:

Reagent

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the product: Research and Development

Uses advised against: Do not use for other purposes.

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

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FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

Section 2. Hazards identification

GHS classification and label elements of the product**Classification of the substance or mixture****PHYSICAL AND CHEMICAL HAZARDS**

Flammable liquids: Category 4

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Acute toxicity (Dermal): Category 3

Acute toxicity (Inhalation): Category 4

Serious eye damage/eye irritation: Category 2B

Carcinogenicity: Category 2

Reproductive toxicity: Category 1B

Specific target organ toxicity – single exposure: Category 1 (nervous system, blood system, liver, reproductive organs (male))

Specific target organ toxicity – single exposure: Category 3 (Narcotic effects)

Specific target organ toxicity – repeated exposure: Category 1 (nervous system, blood system, respiratory organs, liver, kidney, reproductive organs (male))

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 2

Hazardous to the aquatic environment, long-term (chronic): Category 3

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

Label elements

Signal word: Danger

HAZARD STATEMENT

H227–Combustible liquid
H302–Harmful if swallowed
H311–Toxic in contact with skin
H332–Harmful if inhaled
H320–Causes eye irritation
H351–Suspected of causing cancer
H360–May damage fertility or the unborn child
H370–Causes damage to organs
H336–May cause drowsiness or dizziness
H372–Causes damage to organs through prolonged or repeated exposure
H401–Toxic to aquatic life
H412–Harmful to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT**Prevention**

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid release to the environment.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not breathe dust/ mist.
Use only outdoors or in a well-ventilated area.
Wash contaminated parts thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
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 is required.
Get medical advice/attention if you feel unwell.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER/doctor/physician if you feel unwell.
IF exposed or concerned: Call a POISON CENTER/doctor/physician.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN: Wash with plenty of soap and water.
Take off immediately all contaminated clothing and wash it before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Rinse mouth.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.

Storage

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/national regulation.

Specific Physical and Chemical hazards

Heating may cause fire.

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name:Nitrobenzene

Content Guaranteed Reagent (%):99.5 <

Extra Pure (%):99.0 <

Chemical formula:C6H5NO2

ENCS:3-436

CAS No.:98-95-3

MW:123.11

EC No.:202-716-0

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

Components contributing to the hazard

Toxic for reproduction (Article 57c) in REACH SVHC candidate list

Nitrobenzene

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

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

Remove person to fresh air and keep comfortable for breathing.

Give artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

Call a POISON CENTER/doctor/physician if you feel unwell.

For minor skin contact, avoid spreading material on unaffected skin.

Remove and isolate contaminated clothing and shoes.

IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.

Give a slurry of activated charcoal in water to drink.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Headache. Blue lips, fingernails and skin. Dizziness. Nausea. Weakness. Confusion.

Convulsions. Unconsciousness.

(Symptoms when skin and/or eye contact)

Headache. Blue lips, fingernails and skin. Dizziness. Nausea. Weakness. Confusion.

Convulsions. Unconsciousness.

※MAY BE ABSORBED INTO THE SKIN.

Indication of any immediate medical attention and special treatment needed

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Cool container with water spray.

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

Personnel 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.

Environmental precautions

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

Fire or Explosion : Runoff may pollute waterways.

Methods and materials for containment and cleaning up

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

Collect leaking and spilled liquid in sealable containers as far as possible.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

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

Do not get water inside containers.
Keep out of low areas.

Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/ mist.

(Protective measures against fire and explosion)

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

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Precautions)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use only outdoors or in a well-ventilated area.

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

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Any incompatibilities

Strong acids, Strong oxidizing agents, Reducing agents, Nitrogen oxides should not be mixed with the chemicals.

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

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

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

Storage

Conditions for safe storage

Store in a well-ventilated place. Keep container tightly closed.

Keep cool. Protect from sunlight.

Store in accordance with local/national regulation.

Store locked up.

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

Control parameters

Control value and Concentration standard value under ISHA

Concentration standard value TWA: 0.1ppm

Occupational Exposure Limit

JSOH

1 ppm; 5 mg/m³ (skin)

ACGIH

TWA: 1 ppm (MeHb-emia)

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

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. Recommended material(s): butyl rubber, viton

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 protection

Wear safety glasses with side-shields.

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: Oily liquid

Color: Colorless ~ Yellow

Odor: Characteristic odor

Odor threshold data is not available.

Melting point/Freezing point: 5°C

Boiling point or initial boiling point: 211°C

Boiling range data is not available.

Flammability data is not available.

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 1.8 vol %

Upper explosion limit: 40 vol %

Flash point: 88°C(C.C.)

Auto-ignition temperature: 480°C

Decomposition temperature: >350°C

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

pH: ca. 8.1(1 g/L, 20°C)

Dynamic viscosity: 2.03mPa·s(20°C)

Kinematic viscosity data is not available.

Solubility:

Solubility in water: 0.2 g/100 mL

Solubility in solvent: Very soluble in ethanol or diethyl ether.

Partition coefficient n-octanol/water: log Pow1.86

Vapor pressure: 20 Pa (20°C)

Vapor density data is not available.

Density and/or relative density: 1.201~1.207 g/mL (20°C)

Relative vapor density (Air=1): 4.2

Relative density of the Vapor/air - mixture at 20°C (Air = 1): 1.00

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.

Possibility of hazardous reactions

On combustion, forms toxic and corrosive fumes.

Reacts violently with strong oxidants and reducing agents. This generates fire and explosion hazard.

Reacts violently with strong acids and nitrogen oxides. This generates explosion hazard.

Conditions to avoid

Contact with incompatible materials.

Open flames. Heating.

Incompatible materials

Strong acids. Strong oxidizing agents. Reducing agents. Nitrogen oxides.

Hazardous decomposition products

Carbon oxides. Nitrogen oxides.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

Category 4, Harmful if swallowed

[Data for components of the product]

[NITE-CHRIP]

rat LD50: 588 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: 760 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Product]

Category 4, Harmful if inhaled

[Data for components of the product]

[NITE-CHRIP]

mist: rat LC50: 556 ppm (4-hour)(converted value: 2.79 mg/L) (source: NITE)

Irritant properties

Skin corrosion/irritation

[Product]

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

[Data for components of the product]

No data available.

Serious eye damage/irritation

[Product]

Category 2B, Causes eye irritation

[Data for components of the product]

[NITE-CHRIP]

Category 2B (source: NITE)

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]

Category 2, Suspected of causing cancer

[Data for components of the product]

[NITE-CHRIP]

Category 2 (source: NITE)

[IARC]

Group 2B : Possibly carcinogenic to humans

[ACGIH]

A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans

[JSOH]

Group 2B: The agents which are probably or possibly carcinogenic to humans

[NTP]

RAHC : Reasonably Anticipated to be Human Carcinogens

[EU]

Category 2; Substances suspected human carcinogens

Reproductive toxicity

[Product]

Category 1B, May damage fertility or the unborn child

[Data for components of the product]

[NITE-CHRIP]

Category 1B (source: NITE)

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 1, Causes damage to organs

Category 3, May cause drowsiness or dizziness

[Data for components of the product]

[NITE-CHRIP]

Category 1 (nervous system, blood system, liver, reproductive organs (male)), Category 3 (Narcotic effects) (source: NITE)

STOT-repeated exposure

[Product]

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

[Data for components of the product]

[NITE-CHRIP]

Category 1 (nervous system, blood system, respiratory organs, liver, kidney, reproductive organs (male)) (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 2, Toxic to aquatic life

Category 3, Harmful to aquatic life with long lasting effects

[Data for components of the product]

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

[NITE-CHRIP]

Crustacea (*Mysidopsis bahia*) 96-hour LC50: 6.68 mg/L (source: NITE)Fish (*Oryzias latipes*) 96-hour LC50: 24 mg/L (source: NITE)

Hazardous to the aquatic environment, long-term (chronic)

[NITE-CHRIP]

Crustacea (*Daphnia magna*) 21-day NOEC (reproduction): 2.6 mg/L (source: NITE)

Water solubility

[Data for components of the product]

0.2 g/100 mL (source: ICSC, 2006)

Persistence and degradability

[Data for components of the product]

Not rapidly degradable (Degradation rate: 3.3% (by BOD)) (source: NITE)

Bioaccumulative potential

[Data for components of the product]

log Pow: 1.86 (source: ICSC, 2006)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment.

Dispose of contents/container in accordance with local/national regulation.

Section 14. Transport Information

UN No., UN CLASS

UN Number or ID Number : 1662

UN Proper Shipping Name :

NITROBENZENE

Class or division (Transport hazard class) : 6.1

Packing group : II

ERG GUIDE No.: 152

Special provisions No.: 279

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 1662

UN Proper Shipping Name :

NITROBENZENE

Class or division (Transport hazard class) : 6.1

Packing group : II

Special provisions No.: 279

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 1662

UN Proper Shipping Name :

NITROBENZENE

Class or division (Transport hazard class) : 6.1

Hazard labels : Toxic

Packing group : II

Special provisions No.: A113

Environmental hazards

Marine pollutants (yes/no) : no

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

Noxious Liquid Substances ; Cat. Y

Nitrobenzene

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

Reproductive toxicity: cat.1, 1A, 1B

Nitrobenzene

Specific target organ toxicity – repeated exposure: cat.1

Nitrobenzene

Section 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Labor Standards Act, Japan

Chemical substances or compounds (including alloys) causing disease (item (iv)-1 of Appended Table 1-2 of Regulation)

Nitrobenzene

List of substances subject to authorisation (REACH, Annex XIV)/SVHC – candidate list

Toxic for reproduction (Article 57c)

Nitrobenzene

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

Chemicals listed in TSCA Inventory

98-95-3

All components are listed or exempted.

Superfund Amendments and Reauthorizations Act (SARA), Title III

SARA 313 (TRI)

Nitrobenzene

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

Nitrobenzene, JUNSEI CHEMICAL CO., LTD., 54395jis_E-3, 23/Jul/2025

H227-Flammable liquids, Category 4: H227 Combustible liquid
H302-Acute toxicity, Category 4: H302 Harmful if swallowed
H311-Acute toxicity, Category 3: H311 Toxic in contact with skin
H332-Acute toxicity, Category 4: H332 Harmful if inhaled
H320-Serious eye damage/eye irritation, Category 2B: H320 Causes eye irritation
H351-Carcinogenicity, Category 2: H351 Suspected of causing cancer
H360-Reproductive toxicity, Category 1B: H360 May damage fertility or the unborn child
H370-STOT – single exposure, Category 1: H370 Causes damage to organs
H336-STOT – single exposure, Category 3, Narcotic effects: H336 May cause drowsiness or dizziness.
H372-STOT – Repeated exposure, Category 1: H372 Causes damage to organs through prolonged or repeated exposure
H401-Hazardous to the aquatic environment, short-term (acute), Category 2: H401 Toxic to aquatic life
H412-Hazardous to the aquatic environment, long-term (chronic), Category 3: H412 Harmful to aquatic life with long lasting effects

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 (66th Edition) 2025
2024 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2025 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2019
JIS Z 7253 : 2019
Recommendation of occupational exposure limits (2023-2024) (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 4.34
(<https://www.asahi-ghs.com/>)
NITE Chemical Risk Information Platform "NITE-CHRIP"
(https://www.chem-info.nite.go.jp/chem/chrip/chrip_search/systemTop)
GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.1) (May. 2024, METI)

Abbreviations and acronyms

SDS (Safety Data Sheet)
LD50 (Lethal Dose, 50%)
LC50 (Lethal Concentration, 50%)
IARC (International Agency for Research on Cancer)
ACGIH (American Conference of Governmental Industrial Hygienists)
EPA (US Environmental Protection Agency)
NTP (US National Toxicology Program)

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)

JSOH (Japan Society for Occupational Health)

ISHA (Industrial Safety and Health Act in Japan)

CSCL (Chemical Substances Control Law in Japan)

EU (European Union)

EC50 (Effective Concentration, 50%)

NOEC (No Observed Effect Concentration)

BOD (Biochemical Oxygen Demand)

COD (Chemical Oxygen Demand)

BCF (Bioconcentration Factor)

anh (anhydride)

General Disclaimer

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 FY2023).