

Safety Data Sheet

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

Product identifier:

Product name: p-Toluidine

Reference number(SDS):50035jis_J_E2-1

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.

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

Division: Quality Assurance Department

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Section 2. Hazards identification

Classification of the substance or mixture**HEALTH HAZARDS**

Acute toxicity (Oral): Category 4

Acute toxicity (Dermal): Category 3

Serious eye damage/eye irritation: Category 2A

Skin sensitization: Category 1

Carcinogenicity: Category 2

Specific target organ toxicity – single exposure: Category 1 (central nervous system, blood system, kidney, urinary bladder)

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

Specific target organ toxicity – repeated exposure: Category 1 (blood system, urinary bladder)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 1

Hazardous to the aquatic environment, long-term (chronic): Category 1

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

Label elements**Hazard pictograms:**

Signal word: Danger

Hazard statements

H302-Harmful if swallowed

H311-Toxic in contact with skin

H319–Causes serious eye irritation

H317–May cause an allergic skin reaction

H351–Suspected of causing cancer

H370–Causes damage to organs

H335–May cause respiratory irritation

H372–Causes damage to organs through prolonged or repeated exposure

H400–Very toxic to aquatic life

H410–Very toxic to aquatic life with long lasting effects

Precautionary statements

Prevention

Obtain, read and follow all safety instructions before use.

Avoid release to the environment.

Do not breathe dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Wash hands thoroughly after handling.

Contaminated work clothing should not be allowed out of the workplace.

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, foam, dry powder, CO2 to extinguish.

Collect spillage.

Specific treatment.

IF exposed or concerned: Get emergency medical help immediately.

Get emergency medical help immediately.

IF exposed or concerned, get medical advice.

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 skin irritation or rash occurs: Get medical help.

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

Take off 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 help.

Rinse mouth.

IF SWALLOWED: Get medical help.

Storage

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

Store locked up.

Disposal

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

Section 3. Composition/information on ingredients

Substance/mixture:

Substance

Common name, synonyms: 4-Methylaniline

Ingredient name:p-Toluidine

Content (%):98.0 <

Chemical formula:C7H9N

ENCS:3-186

CAS No.:106-49-0

MW:107.16

EC No.:203-403-1

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 medical advice.

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.

Get emergency medical help immediately.

If skin irritation or rash occurs: Get medical help.

Remove and isolate contaminated clothing and shoes.

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

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

Rinse mouth.

IF SWALLOWED: Get medical help.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Blue lips, fingernails and skin. Confusion. Dizziness. Headache. Shortness of breath.

Weakness. Convulsions. Nausea. Unconsciousness. Laboured breathing.

(Symptoms when skin and/or eye contact)

Redness. Blue lips, fingernails and skin. Pain of the eyes.

※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, 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.

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

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.

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

Sweep spilled substance into sealable containers.

If appropriate, moisten first to prevent dusting.

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.

Reference to other sections

Refer to section 8

Refer to section 13

Section 7. Handling and storage

Handling

Engineering measures

(Measures to prevent operator exposure)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Measures to prevent fire and explosion)

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

(Local ventilation/general ventilation)

Exhaust/ventilator should be available.

(Precautions)

Avoid contact with skin.

Avoid contact with eyes.

Advice on safe handling

Obtain, read and follow all safety instructions before use.

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.

Contaminated work clothing should not be allowed out of the workplace.

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

Storage

Conditions for safe storage

Keep container tightly closed. Keep cool.

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

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

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Control value and Concentration standard value under ISHA

Concentration standard value TWA: 4mg/m³ (effective from 1 October 2026)

Occupational exposure limit values

JSOH

Not established

ACGIH

TWA: 2ppm (MeHb-emia)

Notation

Skin

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

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. 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/face 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: Flakes ~ Crystalline Solid

Color: Colorless ~ Reddish-brown

Odor: Characteristic odor

Odor threshold data is not available.

Melting point/Freezing point: 44 ~ 45°C

Boiling point or initial boiling point and boiling range: 200°C

Flammability data is not available.

Lower and upper explosion limit:

Lower explosion limit: 1.1 vol %

Upper explosion limit: 6.6 vol %

Flash point: 87°C(C.C.)

Auto-ignition temperature: 480°C

Decomposition temperature data is not available.

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

pH data is not available.

Dynamic viscosity data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: 0.75 g/100 mL (20°C)

Solubility in solvent: Very soluble in ethanol and pyridine.

Partition coefficient n-octanol/water (log value): 1.39

Vapor pressure: 0.13 kPa (42 °C)

Vapor density data is not available.

Density and/or relative density: 1.05

Relative vapor density (Air=1): 3.7

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.

Turns dark on exposure to air and light.

Possibility of hazardous reactions

As a result of flow, agitation, etc., electrostatic charges can be generated.

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

Reacts with strong oxidants and strong acids.

Attacks some forms of plastic.

Conditions to avoid

Avoid direct sunlight, fire, flame, high temperature.

Contact with incompatible materials.

Air. Light.

Incompatible materials

Strong acids. Strong oxidizing agents.

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-CHIRP]

rat LD50: 336 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Product]

Category 3, Toxic in contact with skin

[Data for components of the product]

[NITE-CHIRP]

rabbit LD50: 890 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Product]

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

[Data for components of the product]

No data available.

Skin corrosion/irritation

[Product]

Based on available data, the classification criteria are not met.

[Data for components of the product]

[NITE-CHIRP]

Not classified (source: NITE)

Serious eye damage/irritation

[Product]

Category 2A, Causes serious eye irritation

[Data for components of the product]

[NITE-CHIRP]

Category 2A (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]

Category 1, May cause an allergic skin reaction

[Data for components of the product]

[NITE-CHIRP]

Category 1 (source: NITE)

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-CHIRP]

Category 2 (source: NITE)

[ACGIH]

A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans

[EU]

Category 2; Substances suspected human carcinogens

Reproductive toxicity

[Product]

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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

Category 3, May cause respiratory irritation

[Data for components of the product]

[NITE-CHRIP]

Category 1 (central nervous system, blood system, kidney, urinary bladder), Category 3 (Respiratory tract irritation) (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-CHRIP]

Category 1 (blood system, urinary bladder) (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 1, Very toxic to aquatic life

Category 1, Very toxic to aquatic life with long lasting effects

[Data for components of the product]

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

[NITE-CHRIP]

Crustacea (Daphnia magna) 48-hour EC50: 0.12 mg/L (source: NITE)

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

[NITE-CHRIP]

Crustacea (Daphnia magna) 21-day NOEC: 0.011 mg/L (source: NITE)

Water solubility

[Data for components of the product]

0.75 g/100 mL (20°C) (source: ICSC, 2009)

Persistence and degradability

[Data for components of the product]

Not rapidly degradable (Degradation rate: 97, 0, 0% (by BOD)) (source: NITE)

Bioaccumulative potential

[Data for components of the product]

log Pow: 1.39 (source: ICSC, 2009)

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 from residues

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

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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 : UN3451

UN Proper Shipping Name : TOLUIDINES, SOLID

Transport hazard class(es) : 6.1

Packing group : II

Special provisions No.: 279

IMDG Code (International Maritime Dangerous Goods Regulations)

UN number : UN3451

UN Proper Shipping Name : TOLUIDINES, SOLID

Transport hazard class(es) : 6.1

Packing group : II

Special provisions No.: 279

IATA (Dangerous Goods Regulations)

UN number : UN3451

UN Proper Shipping Name : TOLUIDINES, SOLID

Transport hazard class(es) : 6.1

Hazard labels : Toxic

Packing group : II

Special provisions No.: A113

Marine pollutants (yes/no) : yes

Maritime transport in bulk according to IMO instruments

Not applicable to Transport in bulk according to Annex II of MARPOL and the IBC Code

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

Specific target organ toxicity – repeated exposure: cat.1

p-Toluidine

Hazardous to the aquatic environment – short-term (acute): cat.1

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Hazardous to the aquatic environment – long-term (chronic): cat.1, 2

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ERG GUIDE No.: 153

Section 15. Regulatory Information

Applicable laws and regulations

Labor Standards Act, Japan

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

Toluidine

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

Chemicals listed in TSCA Inventory

106-49-0

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

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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

H302-Acute toxicity, Category 4: H302 Harmful if swallowed

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

H319-Serious eye damage/eye irritation, Category 2A: H319 Causes serious eye irritation

H317-Skin sensitization, Category 1: H317 May cause an allergic skin reaction

H351-Carcinogenicity, Category 2: H351 Suspected of causing cancer

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

H335-Specific target organ toxicity – single exposure, Category 3, Respiratory tract irritation: H335 May cause respiratory irritation

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

H400-Hazardous to the aquatic environment, short-term (acute), Category 1: H400 Very toxic to aquatic life

H410-Hazardous to the aquatic environment, long-term (chronic), Category 1: H410 Very toxic 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 (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/>)

European Chemicals Agency ECHA CHEM Database (<https://em.echa.europa.eu/>)

National Institute of Technology and Evaluation NITE-CHIRIP

(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-CHRIPI), up to FY2024).