

Safety Data Sheet

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

Product identifier:

Product name: Aniline

Reference number(SDS): 11460jis_E-4

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 2 (vapors)

Acute toxicity (Inhalation): Category 4 (dust/mist)

Serious eye damage/eye irritation: Category 2A

Skin sensitization: Category 1

Germ cell mutagenicity: Category 2

Carcinogenicity: Category 1B

Reproductive toxicity: Category 2

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

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

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

Signal word: Danger

HAZARD STATEMENT

H227-Combustible liquid

H302-Harmful if swallowed

H311-Toxic in contact with skin

H330–Fatal if inhaled (vapors)
H332–Harmful if inhaled (dust/mist)
H319–Causes serious eye irritation
H317–May cause an allergic skin reaction
H341–Suspected of causing genetic defects
H350–May cause cancer
H361–Suspected of damaging fertility or the unborn child
H370–Causes damage to organs
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 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 vapors.
In case of inadequate ventilation wear respiratory protection.
Use only outdoors or in a well-ventilated area.
Wash contaminated parts thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace.
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, foam, dry powder, CO2 to extinguish.
Collect spillage.
Get medical advice/attention if you feel unwell.
IF exposed or concerned: Get medical advice/attention.
Immediately call a POISON CENTER/doctor/physician.
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.
If skin irritation or rash occurs: Get medical advice/attention.
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 advice/attention.
IF SWALLOWED: Rinse mouth. 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

Common name, synonyms: Aminobenzene; Phenylamine

Ingredient name: Aniline

Content (%): 99.0 <

Chemical formula: C₆H₇N

ENCS: 3-105

CAS No.: 62-53-3

MW: 93.13

EC No.: 200-539-3

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

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

Immediately call a POISON CENTER/doctor/physician.

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.

Immediately call a POISON CENTER/doctor/physician.

IF INHALED: 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.

Remove and isolate contaminated clothing and shoes.

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

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. Do NOT induce vomiting.

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

※Administration of oxygen may be needed.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Headache. Dizziness. Nausea. Vomiting. Weakness. Laboured breathing. Convulsions.

Blue lips, fingernails and skin.

(Symptoms when skin and/or eye contact)

Conjunctival redness of the eyes. Pain of the eyes. Corneal damage. Redness of the skin.

Blue fingernails and skin.

※Easily 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.

Specific treatment is urgent.

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

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Cool container with water spray.

Dike fire control water for later disposal; do not scatter the material.

Cool containers with flooding quantities of water until well after fire is out.

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.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFETY: Ventilate closed spaces before entering.

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

EVACUATION : Spill: See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

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, et al), then place in a chemical waste container.

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 vapors.

Avoid breathing 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.

(Safety treatments)

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.

When heated, vapors may form explosive mixtures with air: indoors, outdoors, and sewers explosion hazards.

Any incompatibilities

Strong acids, Strong oxidizing agents 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.

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

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

Keep only in original packaging.

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: 2ppm

Adopted value

JSOH

1ppm; 3.8mg/m³ (skin) [Provisional (years of proposal: 2024)]

ACGIH

TWA: 2ppm (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 chemical safety goggles.

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 ~ Oily liquid

Color: Colorless

Odor: Characteristic odor

Odor threshold: 0.58 ~ 10 ppm; 0.0002 ~ 350.0 mg/m³

Melting point/Freezing point: -6°C

Boiling point or initial boiling point: 184°C

Boiling range data is not available.

Flammability (gases, liquids and solids): Ignitable

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 1.2 vol %

Upper explosion limit: 11 vol %

Flash point: 76°C (Closed cup)

Auto-ignition temperature: 615°C

Decomposition temperature: >=190°C

pH: 8.1 (0.2M aqueous solution)

Dynamic viscosity: 4.35 mPa·s (20°C)

Kinematic viscosity: 4.26 mm²/s (20°C)

Solubility:

Solubility in water: 3.4 g/100 ml (20°C)

Solubility in solvent: Very soluble in ethanol (99.5), diethyl ether.

n-Octanol/water partition coefficient: log P_{ow} 0.9

Vapor pressure: 40 Pa (20°C)

Density and/or relative density: 1.02 g/cm³ (20°C)

Relative vapor density (Air=1): 3.2

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

Particle characteristics data is not available.

Section 10. Stability and Reactivity**Reactivity**

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

Thermal decomposition temperature: $\geq 190^{\circ}\text{C}$

This substance is oxidized rapidly in air and turns to yellow~brown.

Possibility of hazardous reactions

Decomposes above 190°C . This produces toxic and corrosive fumes and flammable vapours.

Reacts with strong acids and strong oxidants. This generates fire and explosion hazard.

Attacks copper and its alloys.

Conditions to avoid

Contact with incompatible materials.

Open flames. Heating. Sparks.

Incompatible materials

Strong acids, Strong oxidizing agents

Hazardous decomposition products

Carbon oxides, Nitrogen oxides, Ammonia.

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: 440 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Product]

Category 3, Toxic in contact with skin

[Data for components of the product]

[NITE-CHRIP]

rat LD50: 670 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Product]

Category 2, Fatal if inhaled (vapors)

Category 4: H332 Harmful if inhaled (dust/mist)

[Data for components of the product]

[NITE-CHRIP]

vapor: rat LC50: 250 ppm (4-hour) (source: NITE)

mist: rat LC50: 478 ppm (4-hour) (source: NITE)

Irritant properties**Skin corrosion/irritation**

[Product]

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

[Data for components of the product]

[NITE-CHRIP]

Not classified (source: NITE)

Serious eye damage/irritation

[Product]

Category 2A, Causes serious eye irritation

[Data for components of the product]

[NITE-CHRIP]

Category 2A (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]

Category 1, May cause an allergic skin reaction

[Data for components of the product]

[NITE-CHRIP]

Category 1 (source: NITE)

Germ cell mutagenicity

[Product]

Category 2, Suspected of causing genetic defects

[Data for components of the product]

[NITE-CHRIP]

Category 2 (source: NITE)

Carcinogenicity

[Product]

Category 1B, May cause cancer

[Data for components of the product]

[NITE-CHRIP]

Category 1B (source: NITE)

[Company proprietary data]

cat.1B; IARC Group 2A (2021)

[IARC]

Group 2A : Probably 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

[Provisional (years of proposal: 2024)]

[EU]

Category 2; Substances suspected human carcinogens

[EPA]

Group B2; Probable human carcinogen(1986)

Reproductive toxicity

[Product]

Category 2, Suspected of damaging fertility or the unborn child

[Data for components of the product]

[NITE-CHRIP]

Category 2 (source: NITE)

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 1, Causes damage to organs

[Data for components of the product]

[NITE-CHRIP]

Category 1 (blood system, nervous system) (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 (blood system, nervous system) (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 pulex) 48-hour EC50: 0.1 mg/L (source: NITE)

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

[NITE-CHRIP]

Crustacea (Daphnia magna) 21-day NOEC (reproduction): 0.004 mg/L (source: NITE)

Water solubility

[Data for components of the product]

3.4 g/100 mL (20°C) (source: ICSC, 2014)

Persistence and degradability

[Data for components of the product]

Rapidly degradable (Degradation rate: 85% (by BOD)) (source: NITE)

Bioaccumulative potential

[Data for components of the product]

log Pow: 0.9 (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

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 : 1547

UN Proper Shipping Name : ANILINE

Class or division (Transport hazard class) : 6.1

Packing group : II

ERG GUIDE No.: 153

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 1547
UN Proper Shipping Name : ANILINE
Class or division (Transport hazard class) : 6.1
Packing group : II
Special provisions No.: 279

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 1547
UN Proper Shipping Name : ANILINE
Class or division (Transport hazard class) : 6.1
Hazard labels : Toxic
Packing group : II

Environmental hazards

Marine pollutants (yes/no) : yes

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

Noxious Liquid Substances ; Cat. Y
Aniline

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

Carcinogenicity: cat.1, 1A, 1B
Aniline
Specific target organ toxicity – repeated exposure: cat.1
Aniline
Hazardous to the aquatic environment – short-term (acute): cat.1
Aniline
Hazardous to the aquatic environment – long-term (chronic): cat.1, 2
Aniline

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 (Regulation, Appended Table 1-2-4-1)
Aniline

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

Chemicals listed in TSCA Inventory
62-53-3

All components are listed or exempted.

Superfund Amendments and Reauthorizations Act (SARA), Title III

SARA 313 (TRI)
Aniline

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**

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
H330–Acute toxicity, Category 2: H330 Fatal if inhaled (vapors)
H332–Acute toxicity, Category 4: H332 Harmful if inhaled (dust/mist)
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
H341–Germ cell mutagenicity, Category 2: H341 Suspected of causing genetic defects
H350–Carcinogenicity, Category 1B: H350 May cause cancer
H361–Reproductive toxicity, Category 2: H361 Suspected of damaging fertility or the unborn child
H370–STOT – single exposure, Category 1: H370 Causes damage to organs
H372–STOT – 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 (66th Edition) 2025
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2025 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2019
JIS Z 7253 : 2019
2024 Recommendation on TLVs (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 4.32 (<https://www.asahi-ghs.com/>)
NITE Chemical Risk Information Platform "NITE-CHRIIP"
(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).