Date of issue for the 1st edition : 26/Jun/2018
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Safety Data Sheet

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

Product identifier:

Product name: Quinoline

Reference number(SDS):25315jis_J_E2-2

Product type:

Reagent

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
Telephone number: +81-48-986-6161
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

HEALTH HAZARDS

Acute toxicity (Oral): Category 3
Acute toxicity (Dermal): Category 3
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2A
Germ cell mutagenicity: Category 2
Carcinogenicity: Category 1B
Specific target organ toxicity - single exposure: Category 1 (nervous system)
Specific target organ toxicity - single exposure: Category 3 (Respiratory tract irritation)
Specific target organ toxicity - single exposure: Category 3 (Narcotic effects)
Specific target organ toxicity - repeated exposure: Category 2 (nasal cavity, liver)

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

H301-Toxic if swallowed
H311-Toxic in contact with skin
H315-Causes skin irritation
H319-Causes serious eye irritation
H341-Suspected of causing genetic defects
H350-May cause cancer
H370-Causes damage to organs
H335-May cause respiratory irritation
H336-May cause drowsiness or dizziness

H373-May cause 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.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash contaminated parts thoroughly after handling.
Wear protective gloves or protective clothing.
Wear protective gloves.
Wear eye protection/face protection.
Use personal protective equipment as required.
Do not eat, drink or smoke when using this product.

Response

Collect spillage.
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.
If skin irritation occurs: Get medical advice/attention.
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.
IF SWALLOWED: Rinse mouth. Immediately call a POISON CENTER/doctor/physician.

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.

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name:Quinoline
Content (%):95.0 <
Chemical formula:C9H7N
Chemicals No, Japan:5-794
CAS No.:91-22-5
MW:129.16
ECNO:202-051-6

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.

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.
If skin irritation 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.
If victim is conscious, give 1 - 2 glasses of water.
Immediately call a POISON CENTER/doctor/physician.
Call a POISON CENTER/doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Cough. Sore throat.

(Symptoms when skin and/or eye contact)

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

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.

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.
PUBLIC SAFTY: 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.

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 dust/fume/gas/mist/vapors/spray.

(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.

Any incompatibilities

Acids, Strong oxidizing agents, Acid anhydrides 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 in MHLW is not available.

Adopted value

Adopted value in JSOH is not available.
Adopted value in ACGIH is not available.

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

Wear respiratory protection.
Recommended respiratory protection：Gas mask(e.g. JIS T8152)

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.

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: Hygroscopic liquid
Color: Colorless
Odor: Characteristic odor
Odor threshold: 71ppm
Melting point/Freezing point: −15℃
Boiling point or initial boiling point: 238℃
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: 7.0 vol %

Flash point: (c.c.)101℃

Auto-ignition temperature: 480℃
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: 0.61 g/100 ml (20℃)
Solubility in solvent: Very soluble in ethanol and diethyl ether.
n-Octanol/water partition coefficient: log Pow2.06
Vapor pressure: 8 Pa (20℃)
Density and/or relative density: 1.082～1.102 g/ml(20℃)
Relative vapor density (Air=1): 4.5
Relative density of the Vapor/air - mixture at 20℃ (Air = 1): 1.00
Particle characteristics data is not available.
Other information
Critical temperature: 509℃
Evaporation rate data is not available.
VOC data is not available.

Section 10. Stability and Reactivity

Reactivity
Runaway polymerization will not occur.
Chemical stability
Stable under normal storage/handling conditions.
Turns brown on exposure to light.
Possibility of hazardous reactions
Decomposes on heating and on burning. This produces toxic fumes.
Reacts with strong oxidants, acids and anhydrides.
Conditions to avoid
Contact with incompatible materials.
Open flames. Heating. Light.
Incompatible materials
Acids, Strong oxidizing agents, Acid anhydrides.
Hazardous decomposition products
Carbon oxides, Nitrogen oxides

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]
[GHS Cat. Japan, base data]
rat LD50=262mg/kg (AICIS IMAP, 2015)
Acute toxicity (Dermal)
[Product]
Category 3, Toxic in contact with skin
[Data for components of the product]
[GHS Cat. Japan, base data]
rabbit LD50=0.54mL/kg (590mg/kg or 593mg/kg) (AICIS IMAP, 2015)

Acute toxicity (Inhalation)
[Product]
Classification not possible (Insufficient data available or no data available).
[Data for components of the product]
No data available.

Irritant properties
Skin corrosion/irritation
[Product]
Category 2, Causes skin irritation
[Data for components of the product]
[GHS Cat. Japan, base data]
rabbit : moderate to severe irritation (PATTY 6th, 2012) et al.

Serious eye damage/irritation
[Product]
Category 2A, Causes serious eye irritation
[Data for components of the product]
[GHS Cat. Japan, base data]
rabbit : moderate to severe irritation (PATTY 6th, 2012) et al.

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]
Category 2, Suspected of causing genetic defects
[Data for components of the product]
[GHS Cat. Japan, base data]
cat. 2; IRIS Summary, 2001
Reverse-mutation assay in bacteria (Ames test) :Positive
(MHLW：Mutagenicity Test Results for Chemical Substances)
Chromosome aberration test :Positive(MHLW：Mutagenicity Test Results for Chemical Substances)

Carcinogenicity
[Product]
Category 1B, May cause cancer
[Data for components of the product]
[GHS Cat. Japan, base data]
cat.1B; (MHLW Carcinogenicity Test Report Results, 2003 et al.)
[IARC]
Group 2B : Possibly carcinogenic to humans
[ACGIH]
[EPA]
K/L; Known/likely human carcinogen(1996)
[JSOH]
Group 2B: The agents which are probably or possibly carcinogenic to humans
[EU]
Category 1B; Substances presumed to have carcinogenic potential for humans

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 (STOT)
STOT-single exposure
[Product]
Category 1, Causes damage to organs
Category 3, May cause respiratory irritation
Category 3, May cause drowsiness or dizziness
[Data for components of the product]
[cat.1]
[GHS Cat. Japan, base data]
nervous system (HSDB, Access on April 2020; AICIS IMAP, 2015)
[cat.3 (respiratory tract irritation)]
[GHS Cat. Japan, base data]
respiratory tract irritation (HSDB, Access on April 2020; MOE Result of the initial environmental risk assessment of chemicals vol. 11, 2013)
[cat.3 (narcotic effects)]
[GHS Cat. Japan, base data]
narcotic effect (HSDB, Access on April 2020)
STOT-repeated exposure
[Product]
Category 2, May cause damage to organs through prolonged or repeated exposure
[Data for components of the product]
[cat.2]
[GHS Cat. Japan, base data]
liver, nasal cavity (MOE Result of the initial environmental risk assessment of chemicals vol. 11, 2013; MHLW Carcinogenicity Test Report Results, 1999)
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

Toxicity
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)
[GHS Cat. Japan, base data]
Fish (Pimephales promelas) LC50=0.44mg/L/96hr
(MOE Result of the initial environmental risk assessment of chemicals, Vol.11, 2013)
Hazardous to the aquatic environment, long-term (chronic)
[GHS Cat. Japan, base data]
Crustacea (Daphnia magna) NOEC=0.8mg/L/21days
(MOE Result of the initial environmental risk assessment of chemicals, Vol.11, 2013)

Water solubility

[Data for components of the product]

0.61 g/100 ml (20℃) (ICSC, 2008)

Persistence and degradability

[Data for components of the product]

Not rapidly degradable (BIOWIN)

Bioaccumulative potential

[Data for components of the product]

log Pow=2.06 (ICSC, 2008)

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 : 2656

UN Proper Shipping Name : QUINOLINE

Class or division (Transport hazard class) : 6.1

Packing group : III

ERG GUIDE No.: 154

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 2656

UN Proper Shipping Name : QUINOLINE

Class or division (Transport hazard class) : 6.1

Packing group : III

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 2656

UN Proper Shipping Name : QUINOLINE

Class or division (Transport hazard class) : 6.1

Hazard labels : Toxic

Packing group : III

Environmental hazards

Marine pollutants (yes/no) : yes

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

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)

Carcinogenicity: cat.1, 1A, 1B

Quinoline

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

Quinoline

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

Quinoline

Section 15. Regulatory Information

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

Mutagen [MHLW_J Notice]

Quinoline

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

Chemicals listed in TSCA Inventory

91-22-5

All components are listed or exempted.

Superfund Amendments and Reauthorizations Act (SARA), Title III

SARA 313 (TRI)

Quinoline

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

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

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

H315-Skin corrosion/irritation, Category 2: H315 Causes skin irritation

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

H341-Germ cell mutagenicity, Category 2: H341 Suspected of causing genetic defects

H350-Carcinogenicity, Category 1B: H350 May cause cancer

H370-STOT - single exposure, Category 1: H370 Causes damage to organs

H335-STOT - single exposure, Category 3, Respiratory tract irritation: H335 May cause respiratory irritation.

H336-STOT - single exposure, Category 3, Narcotic effects: H336 May cause drowsiness or dizziness.

H373-STOT - Repeated exposure, Category 2: H373 May cause 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 22nd edit., 2021 UN

IMDG Code, 2020 Edition (Incorporating Amendment 40-20)

IATA Dangerous Goods Regulations (64th Edition) 2023

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2023 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2022 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 4.25 (https://www.asahi-ghs.com/)
NITE Chemical Risk Information Platform "NITE-CHRIP" (https://www.nite.go.jp/en/chem/chrip/chrip_search/systemTop)
GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.0) (Mar. 2020, 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)
JSOH (Japan Society for Occupational Health)
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 Japan official data (NITE published in 2022).