

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 26-Feb-2024
Revision Number 5.05

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	Phthalonitrile
Product Code	168-02532

Supplier FUJIFILM Wako Pure Chemical Corporation
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Recommended uses For research use only

Restrictions on use Seek expert judgment when using for purposes other than those recommended.

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

Acute toxicity - Oral

Category 3

Specific target organ toxicity (single exposure)

Category 1

Category 1 central nervous system

Specific target organ toxicity (repeated exposure)

Category 1, Category 2

Category 1 nervous system

Category 2 testes, eye

Acute aquatic toxicity

Category 3

Chronic aquatic toxicity

Category 3

Pictograms



Signal word

Danger

Hazard statements

H301 - Toxic if swallowed

H402 - Harmful to aquatic life

H412 - Harmful to aquatic life with long lasting effects

H370 - Causes damage to the following organs: central nervous system

H372 - Causes damage to the following organs through prolonged or repeated exposure: nervous system

H373 - May cause damage to the following organs through prolonged or repeated exposure: testes, eye

Precautionary statements-(Prevention)

- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray
- Avoid release to the environment

Precautionary statements-(Response)

- IF exposed: Call a POISON CENTER or doctor/physician
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

- Rinse mouth

Precautionary statements-(Storage)

- Store locked up

Precautionary statements-(Disposal)

- Dispose of contents/container to an approved waste disposal plant

Others

Other hazards Not available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Single Substance or Mixture Substance

Formula C₆H₄(CN)₂

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Phthalonitrile	97.0	128.13	(3)-1799	公表	91-15-6

Note on ISHL No.: * in the table means announced chemical substances.

Section 4: FIRST AID MEASURES**Inhalation**

Remove to fresh air. If symptoms persist, call a physician.

Skin contact

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Ingestion

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

Protection of first-aiders

Use personal protective equipment as required.

Section 5: FIRE FIGHTING MEASURES**Suitable extinguishing media**

Water spray (fog), Carbon dioxide (CO₂), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media

No information available

Specific hazards arising from the chemical product

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Special extinguishing method

No information available

Special protective actions for fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for contaminant and methods and materials for cleaning up

Sweep up and gather scattered particles, and collect it in an empty airtight container.

Recovery, neutralization

No information available

Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling**Technical measures**

Avoid contact with strong oxidizing agents. Use with local exhaust ventilation.

Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Storage**Safe storage conditions****Storage conditions**

Keep container protect from light, store in well-ventilated place at room temperature (preferably cool). Keep container tightly closed. Store locked up.

Safe packaging material

Glass

Incompatible substances

Strong oxidizing agents

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Phthalonitrile 91-15-6	TWA: 0.01 mg/m ³ OEL Skin ISHL/ACL: 0.01 mg/m ³	ISHL/ACL: 0.01 mg/m ³	TWA: 1 mg/m ³ inhalable fraction and vapor

Personal protective equipment**Respiratory protection**

Dust mask (JIS T 8151)

Hand protection

chemical protective gloves (JIS T 8116)

Eye protection

protective eyeglasses or chemical safety goggles (JIS T 8147)

Skin and body protection

Long-sleeved work clothes

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

If this product is classified as "Chemical Substances Hazardous to Skin, etc.", use appropriate protective equipment to them.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form**Color**

White - slight brown

Appearance	crystals - crystalline powder or mass
Odor	Odorless
Melting point/freezing point	139 - 143 °C
Boiling point, initial boiling point and boiling range	no data available
Flammability	no data available
Evaporation rate:	no data available
Flammability (solid, gas):	no data available
Upper/lower flammability or explosive limits	
Upper:	no data available
Lower:	no data available
Flash point	>130 °C
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH	no data available
Viscosity (coefficient of viscosity)	no data available
Dynamic viscosity	no data available
Solubilities	Ethanol : soluble . water : very slightly soluble.
n-Octanol/water partition coefficient:(log Pow)	0.74
Vapour pressure	no data available
Specific Gravity / Relative density	no data available
Vapour density	no data available
Particle characteristics	no data available

Section 10: STABILITY AND REACTIVITY

Stability

Reactivity	no data available
Chemical stability	May be altered by light.
Hazardous reactions	
None under normal processing	
Conditions to avoid	
Extremes of temperature and direct sunlight	
Incompatible materials	
Strong oxidizing agents	
Hazardous decomposition products	
Carbon monoxide (CO), Carbon dioxide (CO ₂), Nitrogen oxides (NO _x)	

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Phthalonitrile	85 mg/kg (Rat)	N/A	N/A

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas- source information
Phthalonitrile	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust- source information	Acute toxicity -inhalation mist- source information
Phthalonitrile	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Skin irritation/corrosion

Chemical Name	Skin corrosion/irritation source information
Phthalonitrile	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
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Phthalonitrile	Based on the NITE GHS classification results.
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Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Phthalonitrile	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
Phthalonitrile	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Phthalonitrile	Based on the NITE GHS classification results.

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Phthalonitrile	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
Phthalonitrile	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
Phthalonitrile	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Phthalonitrile	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Phthalonitrile	EC50:Desmodesmus subspicatus 415 mg/L 96 h EC50:Desmodesmus subspicatus 421 mg/L 72 h	LC50:Oryzias latipes 22.6 mg/L 96h	EC50:Daphnia magna Straus 219 mg/L 48 h

Other data

Chemical Name	Short-term (acute) hazardous to the aquatic environment source information	Long-term (chronic) hazardous to the aquatic environment source information
Phthalonitrile	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Persistence and degradability	No information available
Bioaccumulative potential	No information available
Mobility in soil	No information available
Hazard to the ozone layer	No information available

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues

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

Contaminated container and contaminated packaging

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

Section 14: TRANSPORT INFORMATION

ADR/RID

UN number UN3439

Proper shipping name: Nitriles, toxic, solid, n.o.s. (Phthalonitrile)
UN classification 6.1
Subsidiary hazard class
Packing group III
Marine pollutant Not applicable

IMDG

UN number UN3439
Proper shipping name: Nitriles, solid, toxic, n.o.s. (Phthalonitrile)
UN classification 6.1
Subsidiary hazard class
Packing group III
Marine pollutant (Sea) Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

IATA

UN number UN3439
Proper shipping name: Nitriles, solid, toxic, n.o.s. (Phthalonitrile)
UN classification 6.1
Subsidiary hazard class
Packing group III
Environmentally Hazardous Substance Not applicable

Section 15: REGULATORY INFORMATION

Japanese regulations

Fire Service Act Not applicable
Poisonous and Deleterious Substances Control Law Deleterious Substances 3rd. Grade
Industrial Safety and Health Act Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57)
 Group 2 Specified Chemical Substance
 Notifiable Substances (Law Art.57-2)
 Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2, Para.1)
Industrial Safety and Health Act (2024-) 【2024.4.1~】Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)
Regulations for the carriage and storage of dangerous goods in ship Toxic Substances - Poison (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Civil Aeronautics Law Toxic and Infectious Substances (Ordinance Art.194, MITL Nortification for Air Transportation of Explosives etc., Attached Table 1)
Pollutant Release and Transfer Register Law (2023.4.1-) Not applicable
Export Trade Control Order Not applicable

Chemical Name	Poisonous and Deleterious Substances Control Law	Industrial Safety and Health Act Substances (Law Art.57-2)	Pollutant Release and Transfer Register Law (2023.4.1-)
Phthalonitrile 91-15-6 (97.0)	Applicable	Applicable	-

Section 16: OTHER INFORMATION

Key literature references and sources for data etc. NITE: National Institute of Technology and Evaluation (JAPAN)
<http://www.safe.nite.go.jp/japan/db.html>

IATA dangerous Goods Regulations
RTECS:Registry of Toxic Effects of Chemical Substances
Japan Industrial Safety and Health Association GHS Model SDS
Dictionary of Synthetic Organic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.
Chemical Dictionary, Kyouritsu Publishing Co., Ltd.
etc

Record of SDS revisions

The following contents were revised. Regulatory information.

Disclaimer

This SDS is according to JIS Z 7253: 2019. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z 7252:2019. *JIS: Japanese Industrial Standards

End of Safety Data Sheet