

Safety Data Sheet

1. Chemical product and company identification

Product name : Phthalic anhydride

Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.
 Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
 Name of section : Business Administration Department, Reagent Division
 Telephone number : +81-3-6214-1090
 Facsimile number : +81-3-3241-1047
 Mail address : BC32@kanto.co.jp
 Reference No : 32211
 Recommended use : For research use only
 Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Health hazards	Acute toxicity (oral)	Category 4
	Serious eye damage/eye irritation	Category 2A
	Respiratory sensitization	Category 1A
	Skin sensitization	Category 1
	Specific target organ toxicity (single exposure)	Category 3 (narcosis)
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)
	Specific target organ toxicity (repeated exposure)	Category 1 (respiratory organs)

Hazard pictograms



Signal word : Danger

Hazard statements : Harmful if swallowed
 May cause an allergic skin reaction
 Causes serious eye irritation
 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 May cause respiratory irritation
 May cause drowsiness or dizziness
 Causes damage to organs (respiratory organs) through prolonged or repeated exposure

Precautionary statements

Prevention : Do not breathe dust/vapors.
 Wash hands, forearms and face thoroughly after handling.
 Do not eat, drink or smoke when using this product.



	<p>Use only outdoors or in a well-ventilated area.</p> <p>Contaminated work clothing should not be allowed out of the workplace.</p> <p>Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>[In case of inadequate ventilation] wear respiratory protection.</p>
Response	<p>: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.</p> <p>IF ON SKIN: Wash with plenty of water.</p> <p>IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>Call a POISON CENTER or doctor if you feel unwell.</p> <p>Get medical advice/attention if you feel unwell.</p> <p>Rinse mouth.</p> <p>If skin irritation or rash occurs: Get medical advice/attention.</p> <p>If eye irritation persists: Get medical advice/attention.</p> <p>If experiencing respiratory symptoms: Call a POISON CENTER or doctor.</p> <p>Take off contaminated clothing and wash it before reuse.</p>
Storage	<p>: Store in a well-ventilated place. Keep container tightly closed. Store locked up.</p>
Disposal	<p>: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.</p>

3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Phthalic anhydride	≥ 99	C ₈ H ₄ O ₃	Listed	201-607-5	85-44-9

4. First aid measures

First aid measures

First-aid measures after inhalation	: Remove the victim to fresh air, and make him blow his nose and gargle. If necessary, get medical treatment.
First-aid measures after skin contact	: Wash the affected areas under running water.
First-aid measures after eye contact	: Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.
First-aid measures after ingestion	: Rinse mouth with water. Give the victim one or two glasses of water or milk. Do not induce vomiting. Get medical treatment as soon as possible.
Personal Protection in First Aid and Measures	: Rescuers should wear proper protective equipment like rubber gloves, goggles.

Most Important Symptoms/Effects

Symptoms/effects	: If inhaled the dust, causes bronchitis, cough, and allergic symptoms.
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5. Fire fighting measures

- Suitable extinguishing media : Dry chemical powder, carbon dioxide, dry sand, foam
- Unsuitable extinguishing media : Water spray
- Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.
- Fight fire from windward.
- Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Foam extinguisher is effective for a large scale fire.
- Personal protection (Emergency response) : Wear breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

- General measures : Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind.

Environmental precautions

- Environmental precautions : Attention should be given to avoid damage to the environment by flowing of spillage to rivers.

Methods and Equipment for Containment and Cleaning up

- For containment : Sweep up in a chemical waste container. Flush contaminated area with copious amounts of water.
- Prevention Measures for Secondary Accidents : Remove nearby sources of ignition and prepare extinguishing media.

7. Handling and storage

Handling

- Technical measures : Wear appropriate protective equipment to avoid contact with skin or inhalation of dust.
- Fire is prohibited.
- Precautions for safe handling : Avoid formation of dust and aerosols.
- Do not allow contact with oxidizing substances.

Storage

- Storage conditions : Store in a dark, cool place and tightly closed.
- Material used in packaging/containers : Glass, polyethylene, polypropylene.

8. Exposure controls / Personal protection equipment

ACGIH TWA	0.002 mg/m ³ (IFV)
ACGIH STEL	0.005 mg/m ³ (IFV)
Remark (ACGIH)	Skin

- Appropriate engineering controls : Install a local ventilation system in case of dusty condition.

Protective equipment



Respiratory protection	: If necessary, wear dust mask
Hand protection	: Impervious protective gloves
Eye protection	: Safety goggles
Skin and body protection	: Protective clothing, protective boots

9. Physical and chemical properties

Physical state	: Solid
Color	: White
Odor	: Characteristic
pH	: Aqueous solution shows acidity
Melting point	: 131 - 133 ° C
Freezing point	: No data available
Boiling point	: 295 ° C
Flash point	: 152 ° C (C.C.)
Auto-ignition temperature	: 570 ° C
Decomposition temperature	: No data available
Flammability	: Flammable solid
Vapor pressure	: 0.03 Pa (20°C)
Relative density	: 1.527 (15/4°C)
Density	: No data available
Relative gas density	: 5.11
Solubility	: Organic solvents: Soluble in ethanol. Water: 6.4 g/L (20°C) (Hydrolyze)
Partition coefficient n-octanol/water (log Pow)	: 1.6
Explosive limits (vol %)	: 1.7 - 10.4 vol %
Viscosity, kinematic	: No data available
Particle characteristics	: No data available

10. Stability and reactivity

Reactivity	: It is easily hydrolyzed to phthalic acid.
Chemical stability	: Stable under normal conditions. Sublimate.
Possibility of hazardous reactions	: May react violently when in contact with oxidizing substances.
Conditions to avoid	: Light, heat, moisture.
Incompatible materials	: Alkaline substances, oxidizing substances.
Hazardous decomposition products	: Carbon monoxide.

11. Toxicological information

Acute toxicity (oral)	: Harmful if swallowed rat LD50=1530mg/kg
Acute toxicity (dermal)	: No classification rabbit LD50>10000mg/kg
Acute toxicity (inhalation)	: No classification (gas) No classification (vapor) Classification not possible (dust, mist)



Skin corrosion/irritation	: No classification There are two reports from tests according to the test guideline (OECD TG 404), and in the first report, this substance was slightly irritating with average skin irritation index of 1.21, and it is reported in the second one that because no irritation reaction was observed, it was not irritating.
Serious eye damage/irritation	: Causes serious eye irritation There is a report that in a test in which 50 mg of undiluted test substance was applied to the conjunctival sac of rabbits, although irritation was observed in the cornea, iris and conjunctiva, all except for the conjunctival redness resolved within a 7-day observation period and it was moderately irritating. In addition, in a test where 100 mg of undiluted test substance was applied to rabbit eyes, the mean score (equivalent to AOI) was 59.2 at 24 hours, and it was judged to be irritating. Based on the above irritation score and a description of moderate irritation, it was classified into category 2A.
Respiratory sensitization	: May cause allergy or asthma symptoms or breathing difficulties if inhaled. This substance was classified as an occupational sensitizer to the airway Group 1 by Japan Society For Occupational Health, and as RSEN (Respiratory Sensitizer) in ACGIH. From the above, it was classified into category 1A.
Skin sensitization	: May cause an allergic skin reaction There is a report that in a maximization test (OECD TG 406) with guinea pigs, the positive rate was 90%. Also, in humans, there is a report that in a patch test conducted on 191 workers handling this substance, allergic reactions were observed in 14% workers. From the above results, it was classified into category 1.
Germ cell mutagenicity	: Classification not possible There is no in vivo data. As for in vitro, it was negative in bacterial reverse mutation tests, a chromosome aberration test and a sister chromatid exchange test with cultured mammalian cells, and positive in a mouse lymphoma test.
Carcinogenicity	: No classification ACGIH classifies it as the group A4(not classifiable as a human carcinogen).
Reproductive toxicity	: Classification not possible
STOT-single exposure	: May cause drowsiness or dizziness May cause respiratory irritation In humans, airway dysfunction by inhalation exposure to high concentrations of the gaseous substances was reported. Also, headache, dizziness, nausea, epigastric burning and a feeling of suffocation on inhalation exposure to the dust, etc. were reported. In experimental animals, there was a report of sedation and imbalance at the oral dose of 500 mg/kg. From the above, it was classified into category 3 (respiratory tract irritation, narcosis).



STOT-repeated exposure	: Causes damage to organs (respiratory organs) through prolonged or repeated exposure There are descriptions that among 118 workers repeatedly exposed by inhalation to this substance resins, rhinitis and inflammation of the upper respiratory tract in 28 workers, chronic bronchitis in 13 workers, and asthma in 21 workers were observed, and that among 35 workers repeatedly exposed by inhalation to this substance, conjunctivitis in 16 workers, rhinitis in 14 workers, asthma in 5 workers, and chronic bronchitis in 6 workers were observed. In experimental animals, in studies in which rats or mice were administered by feeding for 7 weeks or 2 years, no clear target organ toxicity was observed even at doses exceeding 1,000 mg/kg/day. On the other hand, as for the inhalation route, although reliability was limited, in a study in which guinea pigs were exposed by inhalation repeatedly, effects on the eyes and respiratory organs were observed. From the above, it was classified into category 1 (respiratory organs).
Aspiration hazard	: Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	: No classification Oryzias latipes LC50>99mg/L/96h
Aquatic chronic	: No classification Oncorhynchus mykiss NOEC=10mg/L/60-day

Persistence and degradability

Readily biodegradable
BOD : 85.2%

Bioaccumulative potential

Low bioconcentration
BCF : 5

Mobility in soil

High mobility
Koc : 10

Hazardous to the ozone layer

Ozone	: Classification not possible
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13. Disposal considerations

Ecological waste information	: Mixed with flammable organic solvents and burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.
Contaminated container and packaging	: In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG)	: Not applicable
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Proper Shipping Name (IMDG) : Not applicable
Packing group (IMDG) : Not applicable
Transport hazard class(es) : Not applicable
(IMDG)

Air transport(IATA)

UN-No. (IATA) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Packing group (IATA) : Not applicable
Transport hazard class(es) : Not applicable
(IATA)

Marine pollutant : Not applicable

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

Pollutant category : Y

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
Dictionary of Organic Compounds, The society of Synthetic
Organic Chemistry, Kodansha Ltd. (1985) .
Handbook of Dangerous Substances Springer-Verlag Tokyo
(1991) .
Handbook of 17322 Chemical Products, The Chemical Daily Co.
(2022) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National
Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet(SDS) is prepared based on JIS Z7253.

