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Safety Data Sheet

1. Chemical product and company identification

Product name : PHOSPHORIC ACID 86%

Company information

Name of manufacturer	:	KANTO CHEMICAL CO., INC.
Address	:	2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, Japan
Name of section	:	Electronic materials division technical department
Telephone number	:	+81-3-6214-1080
Facsimile number	:	+81-3-3241-1043
Mail address	:	el-info@kanto.co.jp
Reference No	:	GE00229 1.2
Recommended uses and restrictions	:	Electronic chemicals

2. Hazards identification

GHS classification

Health hazards	Acute toxicity (dermal)	Category 4
	Acute toxicity (inhalation:dust/mist)	Category 4
	Skin corrosion/irritation	Category 1C
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity (single exposure)	Category 1 (respiratory organs)
Environmental hazards	Aquatic acute	Category 3

Hazard pictograms

Signal word : Danger

Hazard statements :
Harmful in contact with skin or if inhaled
Causes severe skin burns and eye damage
Causes damage to organs (respiratory organs)
Harmful to aquatic life

Precautionary statements

Prevention :
Do not breathe mist/vapors.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

Response :
IF SWALLOWED: Rinse mouth. Do not induce vomiting.
IF ON SKIN: Wash with plenty of water.
IF ON SKIN (or hair): Take off immediately all contaminated

clothing. Rinse skin with water .
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Call a POISON CENTER or doctor.
Immediately call a POISON CENTER or doctor.
Call a POISON CENTER or doctor if you feel unwell.
Take off contaminated clothing and wash it before reuse.

Storage : Store locked up.

Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Phosphoric acid	85 - 87	H3PO4	Listed	231-633-2	7664-38-2

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. 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 : Inhalation causes burning sensation of throat, throat ache, and cough. Skin and eyes contact causes redness, ache, and severe burning.

5. Fire fighting measures

Suitable extinguishing media : This product is noncombustible.

Unsuitable extinguishing media : None

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.

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 vapor. Conduct operations from upwind and evacuate people downwind. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Environmental precautions

Environmental precautions : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Methods and Equipment for Containment and Cleaning up

For containment : Absorb spill with diatomaceous earth or dry sand and place in container. Neutralize residue with calcium hydroxide solution or sodium carbonate solution and then flush with copious amounts of water.

7. Handling and storage

Handling

Technical measures : If necessary, wear proper protective equipment to avoid contact with skin.

Precautions for safe handling : Use with an enclosed system or a local exhaust ventilation. Handle in a well-ventilated place. When outdoors, work is done from the windward.

Prevents handling of incompatible substances or mixtures : The substance is acidic. Avoid contact with alkaline substances.

Storage

Storage conditions : Store in a dark, cool place and tightly closed.

Material used in packaging/containers : Glass, fluorine resin, stainless steel.
Do not use many kinds of metals like carbon steel, low-alloy steel, nickel.

8. Exposure controls / Personal protection equipment

ACGIH TWA	1 mg/m³
ACGIH STEL	3 mg/m³

Appropriate engineering controls : Use with an enclosed system or a local exhaust ventilation.

Protective equipment

Respiratory protection : If necessary, wear a chemical cartridge respirator with acidic gases.

Hand protection : Acid resistant gloves

Eye protection : Safety goggles

Skin and body protection : Protective clothing, protective boots

9. Physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless.
Odor	:	Odorless
pH	:	Strong acidity
Melting point	:	21 ° C
Freezing point	:	No data available
Boiling point	:	158 ° C
Flash point	:	Non flammable
Auto-ignition temperature	:	Non flammable
Decomposition temperature	:	No data available
Flammability	:	Non flammable.
Vapor pressure	:	2.2 hPa (25℃)
Relative density	:	No data available
Density	:	1.69 g/cm³ (15℃)
Relative gas density	:	No data available
Solubility	:	Water: Miscible.
Partition coefficient n-octanol/water (log Pow)	:	No data available
Explosive limits (vol %)	:	No data available
Viscosity, kinematic:	:	No data available
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	When heated, it dehydrates and condenses. Pyrophosphate is produced at 213℃. Further red heat produces metaphosphoric acid. Reacts with alcohol to produce esters.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	May react violently when in contact with alkaline substances.
Conditions to avoid	:	Light, heat.
Incompatible materials	:	Alkaline substances, oxidizing substances.
Hazardous decomposition products	:	Phosphorus oxides.

11. Toxicological information

Acute toxicity (oral)	:	No classification rat LD50=about 2000mg/kg (as phosphoric acid)
Acute toxicity (dermal)	:	Harmful in contact with skin rabbit LD50=1071mg/kg (as phosphoric acid)
Acute toxicity (inhalation)	:	No classification (gas) Classification not possible (vapor) Harmful if inhaled
Acute toxicity (mist) - Description	:	rat LC50=0.9615mg/L/4h (as phosphoric acid)

Skin corrosion/irritation	:	Causes severe skin burns The result of applying 85% solution of this substance to the rabbit, there is a report that the corrosion was observed within 4 hours. On the other hand, result of the occlusion application of 75% solution of this substance for 4.5 hours, corrosion was not observed. In addition, although more detailed information is unknown, there is the description that 75% solution causes severe burns to the skin. Based on the above results, it was classified into category 1C.
Serious eye damage/irritation	:	Causes serious eye damage Result of the application of this substance(75-85%) to the eyes of rabbit, there is the description that corrosion was observed. In addition, this substance is classified into category 1C in the skin corrosion/irritation. Based on the results, it was classified into category 1.
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	Classification not possible
Germ cell mutagenicity	:	Classification not possible There were no in vivo data. As for in vitro, it was negative in bacterial reverse mutation tests and a chromosomal aberration test with cultured mammalian cells.
Carcinogenicity	:	Classification not possible
Reproductive toxicity	:	Classification not possible There is a report that in a combined repeated dose toxicity study with the reproduction/developmental toxicity screening test with rats by the oral route (gavage) (OECD TG 422), neither reproductive toxicity nor developmental toxicity was observed even at a dose where parental toxicity (death in 2/13 females) was observed. However, since it is a screening test, and information on teratogenicity was lacking, it was classified as "Classification not possible."
STOT-single exposure	:	Causes damage to organs (respiratory organs) This substance is respiratory irritation to humans and experimental animals. Although there were some cases in humans, inhalation causes hoarseness, breathing difficulties, wheezing (by laryngeal edema) by severe exposure. In the most serious case, may cause noncardiogenic pulmonary edema. There is the report that nausea, vomiting, abdominal pain, bloody diarrhea, esophagus, irritation or burns of the stomach by oral administration. Based on the results, it was classified into category 1 (respiratory organs).
STOT-repeated exposure	:	Classification not possible There were no hazardous findings in humans. As for experimental animals, in a combined repeated dose toxicity study with the reproduction/developmental toxicity screening test in which rats were administered this substance by gavage (male: 42 days, female: 40-52 days), no toxicity was observed at up to 250 mg/kg/day, and although death was observed at 500 mg/kg/day, the target organ was unknown. Thus, although it corresponded to "No classification" by the oral route, there was no toxicity information by the other routes, therefore, classification was not possible due to lack of data.
Aspiration hazard	:	Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	:	Harmful to aquatic life Oryzias latipes LC50=75.1mg/L/96h (Not pH adjusted) (as phosphoric acid)
Aquatic chronic	:	No classification Because of 48-hour EC50 > 376 mg/L for crustacea (Daphnia magna) in an acute immobilization test with pH adjustment, and since phosphoric acid exists universally in an environment and is an essential nutrient for living organisms, it was classified as "No classification."

Persistence and degradability

No additional information available

Bioaccumulative potential

No additional information available

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone	:	Classification not possible

13. Disposal considerations

Ecological waste information	:	Add alkali such as calcium hydroxide, sodium carbonate gradually to neutralize and then flush in a drain with a large amount of water. 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)	:	1805
Proper Shipping Name (IMDG)	:	PHOSPHORIC ACID SOLUTION
Packing group (IMDG)	:	III
Transport hazard class(es) (IMDG)	:	8

Air transport(IATA)

UN-No. (IATA)	:	1805
Proper Shipping Name (IATA)	:	Phosphoric acid, solution
Packing group (IATA)	:	III
Transport hazard class(es) (IATA)	:	8

Marine pollutant : Not applicable

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

Pollutant category	:	Z
MFAG-No	:	154

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 : Handbook of dangeroous and hazardous chemicals, Japan Industrial Safety & Health Association. (2000-2001) .
Dangerous Properties of Industrial Materials,6th ed. N.I.Sax Van Nostrand Reinhold Company (1984) .
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.