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Safety Data Sheet

1. Chemical product and company identification

Product name	:	Iodine, spherical

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	:	20349
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
	Acute toxicity (inhalation:vapors)	Category 1
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Skin sensitization	Category 1
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)
	Specific target organ toxicity (repeated exposure)	Category 1 (thyroid)
Environmental hazards	Aquatic acute	Category 1
	Aquatic chronic	Category 1

Hazard pictograms

Signal word	:	Danger
Hazard statements	:	Harmful if swallowed Causes skin irritation May cause an allergic skin reaction Causes serious eye irritation Fatal if inhaled May cause respiratory irritation Causes damage to organs (thyroid) through prolonged or repeated exposure Very toxic to aquatic life Very toxic to aquatic life with long lasting effects

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. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. [In case of inadequate ventilation] wear respiratory protection.
Response	:	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. IF ON SKIN: Wash with plenty of 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. Immediately call a POISON CENTER or doctor. Call a POISON CENTER or doctor if you feel unwell. Get medical advice/attention if you feel unwell. Rinse mouth. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Collect spillage.
Storage	:	Store in a well-ventilated place. Keep container tightly closed. 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
Iodine	≥ 99	I2	Listed	231-442-4	7553-56-2

4. First aid measures

First aid measures

First-aid measures after inhalation	:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately 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	:	Inhalation of vapor causes severe irritation of the nose, throat, and trachea, cough, and chest pain.

5. Fire fighting measures

Suitable extinguishing media	:	This product is noncombustible.
Unsuitable extinguishing media	:	None
Fire hazard	:	When heated, corrosive steam is generated.
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.
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 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	:	Sweep up the scattered chemical and place in an empty container. Then spray sodium thiosulfate water solution on the spillage area and wash thoroughly with water.

7. Handling and storage

Handling

Technical measures	:	Wear appropriate protective equipment to avoid contact with skin or inhalation of dust.
Precautions for safe handling	:	Avoid formation of dust and aerosols. Do not allow contact with reducing 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	0.001 ppm (IFV)
ACGIH STEL	0.1 ppm (V)
Remark (ACGIH)	Skin

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

Protective equipment

Respiratory protection	:	Chemical cartridge respirator or airline respirator
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	:	Blackish violet
Odor	:	Characteristic
pH	:	No data available
Melting point	:	113.6 ° C
Freezing point	:	No data available
Boiling point	:	185.24 ° C
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability	:	Non flammable.
Vapor pressure	:	0.04 kPa (25℃)
Relative density	:	No data available
Density	:	4.93 g/cm³ (25℃)
Relative gas density	:	8.8
Solubility	:	Water: 0.02 % (20℃) Organic solvent: Soluble in ethanol, ether.
Partition coefficient n-octanol/water (log Pow)	:	2.49
Explosive limits (vol %)	:	No data available
Viscosity, kinematic	:	No data available
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	It reacts with many metals at room temperature to produce iodides. It is oxidized by many oxidizing agents to iodic acid. It is reduced by many reducing agents to hydrogen iodide and iodide.
Chemical stability	:	Stable under normal conditions. Sublimation.
Possibility of hazardous reactions	:	When reacted with ammonia, it produces an explosive "ammonia adduct of nitrogen triiodide".
Conditions to avoid	:	Light, heat.
Incompatible materials	:	Oxidizing subsutances, reducing substances, metals.
Hazardous decomposition products	:	Fume, hydrogen iodide.

11. Toxicological information

Acute toxicity (oral)	:	Harmful if swallowed rat LD50=315 mg/kg
Acute toxicity (dermal)	:	No classification rat LD50=3333 mg/kg
Acute toxicity (inhalation)	:	No classification (gas) Fatal if inhaled (vapor) rat LC50=35 ppm/4h Classification not possible (dust, mist)
Skin corrosion/irritation	:	Causes skin irritation There is a report that in a test with rats (inhalation exposure), severe oedema, erythema and desquamation were observed and it was corrosive, but these effects are not considered to be severe, and there is a description that this substance is corrosive to the skin, however, there are no descriptions of the exposure time and irreversible effects. In addition, there is a description that the vapour of this substance was irritating to the skin in humans and there is a description that it causes skin blisters as a local effect. From the above results, it was classified into category 2.
Serious eye damage/irritation	:	Causes serious eye irritation There is a description that the vapour of this substance was irritating to the eyes and eyelids in humans, and there is a report that it was severely irritating to the mucosa in experimental animals. From the above results, it was classified into category 2A.
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	May cause an allergic skin reaction This substance was classified in occupational skin sensitizers Group 2 by Japan Society For Occupational Health. In addition, there are reports of allergic dermatitis and of eruption due to allergic reactions, therefore, it was classified into category 1.
Germ cell mutagenicity	:	Classification not possible There were no in vivo data. As for in vitro, it was negative in a mouse lymphoma test with cultured mammalian cells.
Carcinogenicity	:	No classification ACGIH classifies it as the group A4(not classifiable as a human carcinogen).
Reproductive toxicity	:	Classification not possible Classification not possible due to lack of data. However, human case reports demonstrate that intake of a very high amount of this substance during pregnancy may induce neonatal goiter and hypothyroidism.
STOT-single exposure	:	May cause respiratory irritation There are reports of respiratory tract irritation, coughing, headache and chest tightness by inhalation exposures to a vapour and a mist of this substance, and abdominal pain, vomiting, diarrhea and gastrointestinal ulceration by the oral ingestion in humans. There were no data in experimental animals. From the above, since this substance is irritating to the respiratory tract, it was classified into category 3 (respiratory tract irritation).

STOT-repeated exposure	:	Causes damage to organs (thyroid) through prolonged or repeated exposure There is a description that chronic intake of excess iodine in humans may result in hypothyroidism or hyperthyroidism and in extreme cases of more than 8 mg/kg/day, it causes hyperthyroidism, etc. As for experimental animals, when rats with an inbred susceptibility to autoimmune thyroiditis or general-purpose rats treated with thymectomy were administered by drinking water containing 0.05% of iodine for 8 weeks or 12 weeks, respectively, an increase in the incidence of autoimmune thyroiditis characterized by a lymphocytic infiltration, accompanied by increased thyroid weights and increased antibodies to thyroglobulin was observed. From the above, it was classified into category 1 (thyroid).
Aspiration hazard	:	Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	:	Very toxic to aquatic life Daphnia magna LC50=0.16 mg/L/48h
Aquatic chronic	:	Very toxic to aquatic life with long lasting effects

Persistence and degradability

No additional information available

Bioaccumulative potential

Low bioconcentration
log Pow : 2.49

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone	:	Classification not possible

13. Disposal considerations

Ecological waste information	:	Reduce and decolorize the chemical by addition in sodium sulfite solution and flush in a drain after neutralizing the solution. 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)	:	3495
Proper Shipping Name (IMDG)	:	IODINE
Packing group (IMDG)	:	III
Transport hazard class(es) (IMDG)	:	8 (6.1)

Air transport(IATA)

UN-No. (IATA)	:	3495
Proper Shipping Name (IATA)	:	Iodine
Packing group (IATA)	:	III
Transport hazard class(es) (IATA)	:	8 (6.1)
Marine pollutant	:	Applicable
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 : NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.
Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
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 17625 Chemical Products, The Chemical Daily Co. (2025) .
Handbook of Poisonous and Deleterious substances, revised and enlarged edition, Yakumu Kohosa (2000) .

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.