SAFETY DATA SHEET（SDS）

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemicals Name

Product Name	Potassium iodide
Product Code	

Company Information

Supplier Company Name	GODO SHIGEN CO., LTD.
Department in Charge	Sales department
Address	No.1545-1, NANAIDO, CHOSEI-MURA, CHOSEI-GUN, CHIBA-PREF, 299-4333, JAPAN
Phone Number	0475-32-2302
Fax Number	0475-32-1115
E-mail	sales@godoshigen.co.jp
Emergency Phone Number	GODO SHIGEN CO., LTD. Sales department 0475-32-2302

Recommended Use

General industrial use

Restrictions on Use

Do not use for any other purpose than the above.

2 HAZARDS IDENTIFICATION

GHS Classification

Physical Hazards

Classification not possible

Health Hazards

Serious eye damage/irritation	Category 2B
Reproductive toxicity	Category 1B
Reproductive toxicity·Effects on or via lactation	Additional category
Specific target organ toxicity (Single exposure)	Category 1 (Thyroid)
Specific target organ toxicity (Repeated exposure)	Category 1 (Skin, Thyroid, Systemic toxicity)

Environmental Hazards

Classification not possible

GHS Label Element

Pictograms

Signal Words	Danger
Hazard Statements	Causes eye irritation May damage fertility or the unborn child May cause harm to breast-fed children Causes damage to thyroid Causes damage to skin, thyroid, systemic toxicity through prolonged or repeated exposure
Precautionary Statements	
[Prevention]	Do not breathe dust/mist/vapours. Avoid contact during pregnancy/while nursing. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
[Response]	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: Get medical advice/attention. Get medical advice/attention if you feel unwell. If eye irritation persists: Get medical advice/attention.
[Storage]	Store locked up.
[Disposal]	Dispose of contents/container by requesting a professional waste disposal company licensed by the prefectural governor.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Distinction of Substance or Mixture

Substance

Composition and Information on Ingredient

Chemical name or common name:	Potassium iodide
Chemical properties (chemical formula):	KI
Concentration:	99.5% or more
CAS No.:	7681-11-0
Reference number in gazetted list in Japan	ENCS No.: 1-439 ISHL No.: Published chemical substances

4 FIRST AID MEASURES

First Aid

If inhaled	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist, seek medical attention.
If on skin	Wash with plenty of water and soap. If symptoms persist, seek medical attention.
If in eyes	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist, seek medical attention.
If swallowed	Rinse mouth with water and seek medical attention immediately.

Advice to Protect the Rescuers

Rescuers need to wear appropriate eye and skin protection depending on the situation.

5 FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use water spray, dry chemical powder, foam, and carbon dioxide fire extinguishing agents depending on the surrounding fire.

Unsuitable Extinguishing Media

Avoid direct rod-shaped water injection as fire may spread to the surrounding area.

Special Hazards and Risks

Although it is nonflammable and does not burn itself, the product contains iodine (I) in its molecules, which can release irritating or toxic fumes (or gases) in case of fire.

Specific Fire Fighting

Fight fire from upwind side.
Isolation the site and prohibit the unnecessary person to access.
If without risk, move the container to a safe area.

Fire Fighting Notes and Protective Measures

Fire-fighting personnel must wear appropriate protective equipment and fire-resistant clothing when engaged in firefighting.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Keep unnecessary personnel away.
Use personal protective equipment (See "8. EXPOSURE CONTROLS/PERSONAL PROTECTION") to avoid eye and skin contact and inhalation.
Ventilate before entering a closed area.

Environmental Precautions

Avoid leaking products into the environment as it may affect the surrounding environment.

Methods and Materials for Containment and Cleaning Up

Sweep up the leaked material and collect it in an empty container.
Prevent inflow into drains, sewers, basements or closed areas.

Prevention Measures for Secondary Disaster

Immediately remove all sources of ignition sources (no smoking, sparks or flames nearby).
Cover with a plastic sheet to prevent scattering.

7 HANDLING AND STORAGE

HANDLING

Technical Measures	Provide local exhaust and general ventilation as described in "8. EXPOSURE CONTROLS/PERSONAL PROTECTION", and wear protective equipment as necessary.
Precautions for Safe Handling	Do not breathe dust/fume/vapours/spray.
Contact Avoidance	Refer to "10. STABILITY AND REACTIVITY"
Hygiene Measures	Wash hands and eyes thoroughly after handling. Do not eat, drink or smoke when using this product.

STORAGE

Technical Measures	The equipment of a lighting, and ventilation necessary to store or to handle dangerous articles is installed in the inventory location.
Incompatible Materials	Dangerous goods class 6
Storage Conditions	Store locked up. Avoid direct sunlight. Keep container tightly closed and store in a cool and dark place.
Safe Containers and Packaging Materials	Glass, polyethylene, polypropylene, etc.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Allowable Concentration (Exposure Limits, Biological Limit Values)

JSOH (2021)	2 mg/m^3 (3rd class dust (other inorganic and organic dust), inhalable dust) 8 mg/m^3 (3rd class dust (other inorganic and organic dust), total dust)
ACGIH TLV-TWA (2021)	0.01 ppm (Iodine and Iodides as inhalable fraction and vapor)

Equipment Measures

Use sealed device, equipment, or local mechanical ventilation in work areas where dust is generated.

Personal Protective Equipment

Respiratory Protection	Wear a dust mask if necessary.
Hand Protection	Wear impervious protective gloves.

Eye/Face Protection	Wear protective glasses and goggles.
Skin and Body Protection	Wear protective clothing, protective boots, protective aprons, etc. if necessary.

Special Precautions

No data available

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Colour	White
Odour	Odorless
Melting Point/Freezing Point	680℃
Boiling Point, Initial Boiling Point and Boiling Range	1,330℃
Flammability	Nonflammable
Upper/Lower Flammability or Explosive Limits	Not applicable
Flash Point	Nonflammable
Auto-ignition Temperature	Nonflammable
Decomposition Temperature	No data available
pH	6~8 (50 g/L, 20℃)
Kinetic Viscosity	Not applicable
Solubility	Water: 59.0% (20℃)
Partition Coefficient (*n*-Octanol/Water) (log value)	No data available
Vapor Pressure	No data available
Density / Relative Density	Density: 3.13 g/mL (20℃)
Relative Vapour Density	Not applicable
Particle Characteristics	No data available

10 STABILITY AND REACTIVITY

Reactivity	Stable under normal handling conditions.
Chemical Stability	Stable under normal handling conditions.
Possibility of Hazardous Reactions	Hazardous and harmful reactions do not occur under normal handling conditions.
Condition to Avoid	Avoid direct sunlight and heat.
Incompatible Materials	Dangerous goods class 6
Hazardous Decomposition Products	Iodine

11 TOXICOLOGICAL INFORMATION

Product Hazard Information

Acute Toxicity (Oral)	Mice LDLo = 1,862 mg/kg
Acute Toxicity (Dermal)	Due to lack of data, the classification is not possible.
Acute Toxicity (Inhalation: Gases)	"Solids" according to GHS definition.
Acute Toxicity (Inhalation: Vapours)	"Solids" according to GHS definition.

Acute Toxicity (Inhalation: Dusts / Mists)	Due to lack of data, the classification is not possible.
Skin Corrosion/Irritation	The classification is not possible due to lack of data. Besides, edema of the face and neck is described as acute toxicity signs in humans, but the details are unknown.
Serious Eye Damage/Irritation	It was classified in Category 2B as GHS classification result. It is reported that in a test using rabbits, slight irritation was observed after application of this substance (3% solution) into the cornea, and the extent of irritation was 17 against the maximum of 100. Besides, conjunctivitis, blepharedema and so on are listed as adverse effects in the long-term repeated use.
Respiratory Sensitization	The classification is not possible due to lack of data. Besides, an asthmatic attack is listed as an adverse effect in the long-term repeated use of this substance.
Skin Sensitization	The classification is not possible due to lack of data. Besides, it is reported that it sensitization was not observed after application of a 25% aqueous solution of this substance in humans, but it was judged to be insufficient data to be used for the classification due to unknown details. Moreover, rash and urticaria are listed as adverse effects in the long-term repeated use of this substance. Besides, Japan Society for Occupational Health classified iodine and its compounds as a skin sensitizer Group 2, but there is a cautionary statement that not all compounds were identified.
Germ Cell Mutagenicity	The classification is not possible due to lack of data. There are no *in vivo* data, and as for *in vitro*, a mouse lymphoma test in cultured mammalian cells was negative.
Carcinogenicity	It was classified in "Classification not possible" as GHS classification result. As to a relationship between iodine ingestion and thyroid cancer, as the results of multiple large-scale epidemiological studies, it is suggested that increased iodine ingestion could be a risk factor for thyroid tumor especially in special groups such as an iodine deficit group and regions where endemic goiter often occurs. However, it is written that because an increased risk of cancer was not observed not in all of the studies, a relationship between iodine ingestion and thyroid tumor is still unknown. Moreover, it is reported that an increased incidence of thyroid cancer, especially thyroid papillary carcinoma was observed after increased iodine ingestion by a group of people who reside in the areas of iodine deficit soil. As for experimental animals, it is reported that after lifetime oral exposure (in the diet) to this substance at the dose of about 50 mg/kg/day, only salivary gland tumor in male and female rats (a significant increase only in a statistical test of

	both male and female combined) was observed. Moreover, it is reported that because in a two-stage carcinogenicity test in which rats were orally administered (drinking water) this substance after initiation by nitrosamine, thyroid follicular epithelial cell carcinoma was induced, promotion action was suggested. ACGIH classified iodine and its compounds in A4 in 2008.
Reproductive Toxicity	Because it is hard to say that there is sufficient evidence of reproductive toxicity caused by excessive exposure to iodide in humans, the substance was classified in Category 1B in this hazard class, and the Category of effects by lactation was added. As for humans, excretion into breast milk is one of excretion routes out of the body for iodine ingested. From the results of a study administrating radioactive iodine, an excretion rate of absorbed iodine into body milk is different depending on the function of thyroid tissues. It is reported that about 2.5% of the dosed radioactivity was excreted into body milk in 5.5 days after sodium iodide ($Na^{123}I$) was orally administered to hyperthyroid patients. Similarly, it is reported that hyperthyroid patients showed about a 2.6% iodine excretion rate into body milk. However, it is reported that in hypothyroid patients, 25% of the dosed radioactivity was excreted into body milk within 41 hours after radioactive sodium iodide was orally dosed. As health effects by excessive iodine ingestion in humans, it is written that goiter and thyroid failure occur, with which cretinism, brain dysfunction and so on are related and could occur in newborns and children, and disorder of menstrual cycle including uterus hemorrhage and anovulation could happen in adults as secondary effects on the reproductive system. On the other hand, as for experimental animals, it is reported that after 12-day diet administration (2,500 mg/kg/day) of iodine in pregnant rats in the latter half of gestation period, 25% of maternal animals showed delayed parturition from difficult delivery, and increased mortality was found in newborns, and that after pregnant rabbits were orally dosed of iodide (not knowing if it is this substance) (250 mg/kg/day) for two days before delivery, 2/3 of newborns died. As above, excessive iodine ingestion in humans causes thyroid failure, and effects on sexual function such as menstrual abnormality could occur as secondary effects, and there is the information that absorbed iodine is excreted into body milk, and it is possible that iodine transferred to newborns via body milk causes developmental disorder in infants.
Specific Target Organ Toxicity (Single Exposure)	It was classified in Category 1 (thyroid) as GHS classification result. As human cases, it is reported in New York City Medical

	Examiners Office (USA) that there were 18 suicide cases by oral ingestion of iodine tincture (iodine is dissolved in ethanol, containing potassium iodide (KI) as an additive), and at iodine tincture concentrations of 1,200-9,500 mg (17-120 mg/kg body weight), deaths were observed within 48 hours after ingestion. Besides this, it is reported that suicide was attempted by a solution of this substance (15 g as iodine), but there was a recovery. Moreover, it is written that acute excessive iodine ingestion causes a transient decrease in thyroid hormone production. As the signs by iodides, it is written that toxicity signs at or near-lethal doses were abdominal cramps, hemorrhagic diarrhea, ulcer of the digestive tract, edema of the face and neck, pneumonia, hemolytic anemia, metabolic acidosis, fatty degeneration of the liver, renal failure.
Specific Target Organ Toxicity (Repeated Exposure)	It was classified in Category 1 (skin, thyroid, systemic toxicity) as GHS classification result. In the oral administration of this substance as drug therapy, iodine eruption is observed. It is characterized by acneiform pustules, and proliferating nodular lesions which coalesce with cysts were found on the face, extremities, trunk and so on in multiple cases. Moreover, cases were reported where fever was observed in using this substance as drug therapy. Furthermore, by excessive oral exposure to this substance, hypothyroidism was found, but on the other hand, cases showing hyperthyroidism were also reported. Besides these, as serious adverse effects in long-term repeated use, other than lesions in skin and thyroid, laryngitis, bronchitis, glottal edema, asthmatic attack, salivary gland edema, parotitis, gastritis, along with iodine cachexia such as generalized weakness, palpitation, depression, sleeplessness, and nervousness are listed as iodine poisoning. As above, other than skin and thyroid, various systemic signs for which it is difficult to identify a target organ were observed.
Aspiration Hazards	Due to lack of data, the classification is not possible.

12 ECOLOGICAL INFORMATION

Product Environmental Impact Information

Ecological Toxicity	
Hazards to aquatic environment - acute hazard	No data available
Hazards to aquatic environment - chronic hazard	No data available
Persistence/Degradability	No data available
Bioaccumulation Potential	No data available
Mobility in Soil	No data available
Hazardous to the Ozone Layer	Not applicable

13 DISPOSAL CONSIDERLATIONS

Waste Disposal

For disposal, conform with the standards provided by related laws and local public bodies.
Commission the authorized waste disposal company, or a local public body who conducts the disposal, to dispose of the material.

Contaminated Container and Packaging

Containers should be cleaned and sanctioned appropriately, and relevant regulations should be regulated.
When disposing of empty containers, remove the contents completely.

14 TRANSPORT INFORMATION

International Regulations

Land transport (According to ADR / RID regulations)

UN No.	Not applicable
UN Proper Shipping Name	Not applicable
Hazard Class	Not applicable
Subsidiary Risk	Not applicable
Packing Group	Not applicable

Marine transport (According to IMO regulations)

UN No.	Not applicable
UN Proper Shipping Name	Not applicable
Hazard Class	Not applicable
Subsidiary Risk	Not applicable
Packing Group	Not applicable
Marine Pollutant (Applicable / Not applicable)	Not applicable
IBC code (Applicable / Not applicable)	Not applicable

Air transport(According to ICAO / IATA regulations)

UN No.	Not applicable
UN Proper Shipping Name	Not applicable
Hazard Class	Not applicable
Subsidiary Risk	Not applicable
Packing Group	Not applicable

Regulations in Japan

Regulatory Information by Land	Not applicable
Regulatory Information by Sea	Not applicable
Marine Pollutants	Not applicable
Regulatory Information by Air	Not applicable

Specific Safety Measures:

During transportation, avoid direct sunlight, and ensure that the container is not damaged, corroded or leaked. Prevent the goods from collapsing. Do not stack heavy objects.

15 REGULATORY INFORMATION

Applicable Regulations and Regulatory Information Based on the Regulations

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof	Not applicable
Industrial Safety and Health Act	Dangerous goods and hazardous substances whose names should be displayed （(Iodine and its compounds) (Iodine compounds are limited to Iodides. Preparations and other products containing 1wt% or more. Dangerous materials, flammable materials, etc. that do not become non-solid and do not become powdery during transportation and storage, as well as substances that may cause an explosion or fire. Excludes those that do not pose a risk of corrosion to skin.) Dangerous and hazardous substances for which names should be notified (Iodine and its compounds) (Iodine compounds are limited to Iodides. Preparations and other products containing 1wt% or more)
Poisonous and Deleterious Substances Control Act	Not applicable

16 OTHER INFORMATION

References

NITE GHS classification result list (2021)
JSOH , Japan Society of Occupational Health (2021) Recommendations for permissible concentrations, etc.
Chemical Handbook, Basic Edition, Revised 5th Edition, Maruzen (2004)
ACGIH, American Conference of Governmental Industrial Hygienists (2021) TLVs and BEIs.

【NOTE】The SDS complies with JIS Z 7253: 2019 and is made based on the product information and hazard information available at the time of creation. Please handle with care as it may not always be sufficient. If you have any new knowledge, please change the contents of this SDS as necessary. In addition, the precautions are intended for normal handling, please take safety measures suitable for the application and conditions before special handling.