



Health	1
Fire	0
Reactivity	0
Personal Protection	J

Material Safety Data Sheet

Lugol's solution MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lugol's solution

Catalog Codes: 10830

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Water; Iodine; Potassium Iodide

CI#: Not available.

Synonym: Iodine Potassium Iodide TS, Iodine Potassium Iodide TS

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Water	7732-18-5	92
Iodine	7553-56-2	2
Potassium Iodide	7681-11-0	6

Toxicological Data on Ingredients: Iodine: ORAL (LD50): Acute: 14000 mg/kg [Rat]. 22000 mg/kg [Mouse]. Potassium Iodide LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant, corrosive), of ingestion.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. [Potassium Iodide]. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Classified Reproductive system/toxin/female, Development toxin [POSSIBLE] [Potassium Iodide]. The substance may be toxic to blood, skin, eyes, thyroid. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.

Skin Contact:

Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

Serious Skin Contact: Not available.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Potassium + Fluorine Perchlorate will explode on contact. (Potassium Iodide)

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 25°C (77°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection: Splash goggles. Lab coat. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Iodine STEL: 1 (mg/m³) from ACGIH (TLV) [United States] STEL: 0.1 (ppm) from ACGIH (TLV) [United States] TWA: 1 CEIL: 1 (mg/m³) from OSHA (PEL) [United States] TWA: 0.1 CEIL: 0.1 (ppm) from OSHA (PEL) [United States] STEL: 0.1 (ppm) [United Kingdom (UK)] STEL: 1.1 (mg/m³) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: Not applicable.

Color: Not available.

pH (1% soln/water): Not available

Boiling Point: The lowest known value is 100°C (212°F) (Water).

Melting Point: Not available.

Critical Temperature: Not available.

Specific Gravity: Weighted average: 1.06 (Water = 1)

Vapor Pressure: The highest known value is 2.3 kPa (@ 20°C) (Water).

Vapor Density: The highest known value is 0.62 (Air = 1) (Water).

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:

Easily soluble in cold water, hot water, diethyl ether. Soluble in methanol. Partially soluble in acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Light, incompatible materials

Incompatibility with various substances: Slightly reactive to reactive with oxidizing agents, reducing agents, organic materials, metals, acids.

Corrosivity:

Corrosive in presence of steel, of stainless steel(304), of stainless steel(316). Slightly corrosive in presence of aluminum, of zinc. Non-corrosive in presence of glass, of copper.

Special Remarks on Reactivity: Light Sensitive

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact.

Toxicity to Animals: Acute oral toxicity (LD50): 14000 mg/kg [Rat]. (Iodine).

Chronic Effects on Humans:

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Potassium Iodide]. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Development toxin [POSSIBLE] [Potassium Iodide]. Contains material which may cause damage to the following organs: blood, skin, eyes, thyroid.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose: LDL [Human] - Route: Oral; Dose: 28 mg/kg LCL [Rat] - Route: Inhalation; Dose: 137 ppm/1H (Iodine)

Special Remarks on Chronic Effects on Humans:

Can cause adverse reproductive effects and birth defects based on animal data. May affect genetic material based on animal data (Potassium Iodide)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: May cause skin irritation. Eyes: May cause eye irritation. Inhalation: May cause respiratory tract, nasal, and mucous membrane irritation. May affect behavior, and metabolism. Ingestion: May cause irritation of mouth and digestive tract with nausea, vomiting and diarrhea. May also affect behavior, the urinary system and cardiovascular system. Chronic Potential Health Effects: Ingestion: May cause a reversible reduction in thyroid function, metabolic disturbances, and may affect the blood (anemia). Symptoms of chronic iodine poisoning may include rapid heartbeat, tremor, weight loss, diarrhea, insomnia, eye irritation, bronchitis, gastric irritation, and skin rash.(Iodine) Chronic Potential Health Effects: Can lead to iodism characterized by salivation, nasal discharge, sneezing, conjunctivitis, fever, laryngitis, bronchitis, stomatitis, and skin rashes. Chronic ingestion of iodides (in animals) during pregnancy has resulted in fetal deaths, severe goiter and cretinoid appearance of the newborn. (Potassium Iodide)

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information**Federal and State Regulations:**

Illinois toxic substances disclosure to employee act: Iodine Rhode Island RTK hazardous substances: Iodine Pennsylvania RTK: Iodine Minnesota: Iodine Massachusetts RTK: Iodine Massachusetts spill list: Iodine New Jersey: Iodine TSCA 8(b) inventory: Water; Iodine; Potassium Iodide

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):

R40- Possible risks of irreversible effects. R62- Possible risk of impaired fertility. R63- Possible risk of harm to the unborn child. S2- Keep out of the reach of children. S36/37- Wear suitable protective clothing and gloves.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Not applicable. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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