# MATERIAL SAFETY DATA SHEET

## Chemical Product

Product Name: IODINE (Resublimed) CRYSTALS
CAS#: 7553-56-2
Synonym: Not Available.
Chemical Name: Iodine (Resublimed) Crystals
Chemical Formula: I2

## Composition and Information on Ingredients

| Name | S.K.U | % by Weight |
|---|---|---|
| IODINE (Resublimed) CRYSTALS | GCS-2731 | 100 |

## Hazards Identification

### Potential Acute Health Effects:

Extremely hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion. Very hazardous in case of inhalation. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

### Potential Chronic Health Effects:

Extremely hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion. Very hazardous in case of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

## First Aid Measures

### Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

**Skin Contact:**

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to- mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion:**

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

## Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not available.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in

presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not available.

Special Remarks on Fire Hazards: Ignition on contact with bromine, chlorine trifluoride, metals (powdered) + water, aluminum-titanium alloys + heat, metal acetylides, ... nonmetals, ... sodium phosphinate. Incandescent reaction with cesium oxide (above 150 deg C), bromine trifluoride, metal acetylides or carbides [e.g. barium acetylide (above 122 deg C), calcium acetylide (above 305 deg C), strontium acetylide (above 182 deg C), zirconium acetylide (above 400 degC)]. Magnesium burns vigorously when heated with iodine vapor. Iodine unites with fluorine at ordinary temperature with a luminous flame.

Special Remarks on Explosion Hazards: Explosive reactions with iodine and: hafnium powder + heat; tetraamine copper (II) sulfate + ethanol; trioxygen difluoride; polyacetylene (at 113 deg. C); potassium; sodium; butadiene+ ethanol +mercuric oxide;

## Accidental Release Measures

### Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container.

### Large Spill:

Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Handling and Storage

### Precautions:

Keep container dry. Do not ingest. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, metals.

### Storage:

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

## Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal Protection:

Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an

approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

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.

## Physical and Chemical Properties

**Physical state and appearance: Solid.**

| | |
|---|---|
| Odor | : Sharp Characteristic. (Strong.) |
| Taste | : Not available. |
| Molecular Weight | : 253.81 g/mole |
| Color | : Purple solid with metalic luster. (Dark.) |
| pH (1% soln/water) | : Not available. |
| Boiling Point | : 184.4°C (363.9°F) |
| Melting Point | : 113.7°C (236.7°F) |
| Critical Temperature | : Not available. |
| Specific Gravity | : 4.93 (Water = 1) |
| Vapor Pressure | : Not applicable. |
| Vapor Density | : Not available. |
| Volatility | : Not available. |
| Odor Threshold | : Not available. |
| Water/Oil Dist. Coeff. | : The product is more soluble in oil; log (oil/water) = 2.5 |
| Ionicity (in Water) | : Not available. |
| Dispersion Properties | : See solubility in water, methanol, and diethyl ether. |

Solubility: Easily soluble in diethyl ether. Soluble in methanol. Very slightly soluble in cold water, hot water.

## Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, direct sunlight, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents,

metals.

Corrosivity: Extremely corrosive in presence of steel, of stainless steel (304), of stainless steel (316). Non- corrosive in presence of glass, of aluminum, of copper.

**Special Remarks on Reactivity:**

Incompatible with liquid chlorine, acetaldehyde, ammonia, salt + ethanol, ammonium hydroxide, methyl alcohol, antimony, silver azide, lithium, potasssium , sodium, phosphorous, bromine pentafluoride, fluorine, oxygen difluoride, magnesium, finely divided metals, organic solvents, rubber goods, plastics, zinc, aluminum, alkali metals, sulphur, ammonia solutions, Bromine trifluoride, reducing agents, iron, ethanol + butadiene; ethanol + phosphorous; ethanol + methanol + HgO; foramide + pyrindine + sulfur trioxide; formamide; halogens or interhalogens; mercuric oxide; metal carbides; oxygen; pyridine; sodium hydride. Violent reaction with iodine and aluminum + diethyl ether ... (and) titanium (above 113 deg C)

Special Remarks on Corrosivity: Corrodes steel. No corrosive effect on bronze.

Polymerization: Will not occur.

## Toxicological Information

Routes of Entry: Inhalation. Ingestion.

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

**Chronic Effects on Humans:**

Causes damage to the following organs: thyroid. May cause damage to the following organs: blood, kidneys, liver, skin, eyes.

**Other Toxic Effects on Humans:**

Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Slightly hazardous in case of skin contact (permeator).

**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

**Special Remarks on Chronic Effects on Humans:**

May cause adverse reproductive effects (effects on new born).

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: Corrosive action skin. Causes skin irritation and burns. It is corrosive and can cause penetrating lesions and brown staining. It can be absorbed by the skin. Eyes: Causes eye irritation and burns. May cause conjunctivitis. Exposure to vapor can cause burning sensation in the eyes, tearing, and inflammation of the eye lids. Exposure to high concentrations of vapor can cause Dendritic Keratitis in which the corneal epithelium is sloughed off. Inhalation: Excessive inhalation of iodine vapors may cause respiratory tract, nasal, and mucous membrane irritation with possible burns. Symptoms may include coughing, tightness in the chest, burning sensations to the mucosal, tracheal, and pulmonary tissues, rhinitis, dyspnea/respiratory distress, coughing, sneezing, pulmonary edema, chemical pneumonitis, edema of the larynx and bronchi,

pharyngitis, swelling of the parotid gland, and cachexia. High exposure may lead to lung disease and may also affect behavior/central nervous system (delirium, hallucination, depression, seizure, dizziness, headache, stupor, and somnolence). Ingestion: Ingestion of large doses may cause irritation of mouth of the digestive tract with thirst, nausea, vomiting, abdominal pain, hypermotility, and diarrhea, staining of mouth, esophagus, lips, mucous membranes, metallic taste, abdominal pain, fever. It ma y also affect the cardiovascular system (tachycardia, hypotension, cardiovascular collapse), behavior/central nervous system (delirium, dizziness, headache, hallucinations, seizures.

Toxicological Data on Ingredients: Iodine: ORAL (LD50): Acute: 14000 mg/kg [Rat]. 22000 mg/kg [Mouse].

## 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 products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

## Disposal Considerations

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

## Transformation Information

**Land transport (ADR-RID)**

Proper shipping name: IODINE

UN N°: 3495

**H.I. nr: 86**

ADR - Class: 8

Labelling - Transport: 8: Corrosive substance. 6.1: Toxic substances.

**ADR - Group: III**

Sea transport

(IMDG) [English

only] Proper

shipping name:

IODINE
UN N°: 3495
IMO-IMDG - Class or division: 8: Corrosive substance. (6.1: Toxic substances.)
**IMO-IMDG - Packing group: III**

Air transport (ICAO-IATA)

[English only] Proper

shipping name: IODINE
UN N°: 3495
IATA - Class or division: 8: Corrosive substance. (6.1: Toxic substances.)
**IATA - Packing group: III**

## 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 California Director's List of Hazardous Substances: Iodine TSCA 8(b) inventory: Iodine

**Other Regulations:**
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**
WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive solid.
DSCL (EEC): R38- Irritating to skin. R41- Risk of serious damage to eyes. S2- Keep out of the reach of children. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S39- Wear eye/face protection. S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):
Health Hazard: 2
Fire Hazard: 0
Reactivity: 0
Personal Protection: E

National Fire Protection Association (U.S.A.):
Health: 2
Flammability: 0
Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Additional Information

References: Not available.

Other Special Considerations: Not available.

# *Disclaimer:*

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