



Material Safety Data Sheet

NFPA 	HMIS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #00FFFF;">Health Hazard</td> <td style="text-align: center; font-weight: bold;">3</td> </tr> <tr> <td style="background-color: #FFC0CB;">Fire Hazard</td> <td style="text-align: center; font-weight: bold;">0</td> </tr> <tr> <td style="background-color: #FFFF00;">Reactivity</td> <td style="text-align: center; font-weight: bold;">0</td> </tr> </table>	Health Hazard	3	Fire Hazard	0	Reactivity	0	Personal Protective Equipment See Section 15.
Health Hazard	3							
Fire Hazard	0							
Reactivity	0							

Section 1. Chemical Product and Company Identification		Page Number: 1
Common Name/Trade Name	Iodine	Catalog Number(s) I1010, I1015
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS# 7553-56-2
Commercial Name(s)	Not available.	RTECS NN1575000
Synonym	Not available.	TSCA TSCA 8(b) inventory: Iodine
Chemical Name	Iodine	CI# Not available.
Chemical Family	Not available.	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000
Chemical Formula	I2	
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
Name	CAS #	Exposure Limits			% by Weight
		TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	
1) Iodine	7553-56-2	1	0.1	1	100
Toxicological Data on Ingredients	Iodine: ORAL (LD50): Acute: 14000 mg/kg [Rat]. 22000 mg/kg [Mouse].				

Section 3. Hazards Identification	
Potential Acute Health Effects	Very hazardous in case of skin contact (irritant), of eye 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). 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. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Continued on Next Page

Potential Chronic Health Effects	<p>Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.</p> <p>CARCINOGENIC EFFECTS: Not available.</p> <p>MUTAGENIC EFFECTS: Not available.</p> <p>TERATOGENIC EFFECTS: Not available.</p> <p>DEVELOPMENTAL TOXICITY: Not available.</p> <p>The substance is toxic to thyroid.</p> <p>The substance may be toxic to blood, kidneys, liver, skin, eyes.</p> <p>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.</p>
---	---

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. WARM water MUST be used. Get medical attention immediately.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get 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 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	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 applicable.
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; trioxigen difluoride; polyacetylene (at 113 deg. C); potassium; sodium; butadiene+ ethanol +mercuric oxide;

Continued on Next Page

Section 6. 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.

Section 7. 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).

Section 8. 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/m ³) from ACGIH (TLV) [United States] STEL: 0.1 (ppm) from ACGIH (TLV) [United States] TWA: 1 CEIL: 1 (mg/m ³) 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/m ³) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid.	Odor	Sharp Characteristic. (Strong.)
Molecular Weight	253.81 g/mole	Taste	Not available.
pH (1% soln/water)	Not available.	Color	Purple solid with metallic luster. (Dark.)
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.		

Continued on Next Page

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

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

Section 10. 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, potassium, 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; formamide + pyridine + 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.

Section 11. 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, 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, 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 may also affect the cardiovascular system (tachycardia, hypotension, cardiovascular collapse), behavior/central nervous system (delirium, dizziness, headache, hallucinations, seizures,

Continued on Next Page

depression, stupor, somnolence, muscle weakness). Death is rare following acute iodine ingestion. It is estimated that the mean lethal dose in an adult lies between 2 to 4 grams of free iodine. However, death from acute iodine poisoning may occur due to circulatory collapse, asphyxiation from glottic edema, pulmonary edema, aspiration pneumonia, and cyanosis.

Chronic Potential Health Effects:

Skin: May cause reddening of the skin, itching, acne-like eruption of the skin/skin rash, and skin allergies

Eyes: May cause eye irritation and conjunctivitis.

Ingestion: May cause a reversible reduction in thyroid function (hypothyroidism), nodular goiter, hyperthyroidism, thyrotoxicosis, metabolic disturbances, and may affect the blood (anemia), liver, urinary system/kidneys (kidney damage, hematuria, albuminuria, anuria). Other symptoms of chronic iodine poisoning (Iodism) may include fever, rapid heartbeat, tremor, headache, delirium, stupor, insomnia, salivation, weight loss/loss of appetite, salivation, stomatitis, parotitis, diarrhea, gastric irritation, joint pain and swelling. Furthermore, chronic ingestion of iodides (in animals) during pregnancy has resulted in fetal deaths, severe goiter and cretinoid appearance of the newborn.

Inhalation: May cause disrupted thyroid activity (see ingestion), and chronic irritation of the throat, sneezing, nasal discharge, bronchitis, laryngitis, asthma. It may also affect behavior (see ingestion).

Iodine concentrates in the Thyroid during chronic exposure.


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	Class 8: Corrosive material
Identification	: Corrosive Solid, n.o.s (Iodine) UNNA: 1759 PG: III
Special Provisions for Transport	Not available.
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

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
--------------------------------------	--

Continued on Next Page

California Proposition 65 Warnings

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.

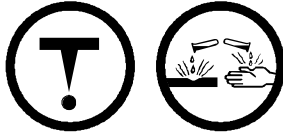
HMIS (U.S.A.)

Health Hazard	3
Fire Hazard	0
Reactivity	0
Personal Protection	j

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

Health	3	0	0	Flammability
				Reactivity
				Specific hazard

WHMIS (Canada) (Pictograms)



DSCL (Europe) (Pictograms)



TDG (Canada) (Pictograms)



ADR (Europe) (Pictograms)



Protective Equipment



Gloves.



Synthetic apron.



Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information**MSDS Code** I3150**References** Not available.**Other Special Considerations** Not available.

Validated by Sonia Owen on 6/18/2003.

Verified by Sonia Owen.

Printed 8/25/2004.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.