Iodine Solution, Lugol

1. Identification

Product Name: Iodine Solution, Lugol
Synonyms: Lugol's Iodine (2%)
Recommended Use: Special Stains
Manufacturer/Supplier:
Avantik
19 Chapin Road - Building C
Pine Brook, NJ 07058
1-800-783-9424

Item #:

Restrictions on Use: N/A
In Case of Emergency:
Chemtrec US 1-800-424-9300
Chemtrec International 703-527-3887

2. Hazards Identification

OSHA Hazard Classification(s):
Skin Irritation - Category 2
Eye Irritation - Category 2B
Toxic to Reproduction - Category 2
Specific Target Organ Toxicity (repeated exposure) - Category 1
Signal Word: Danger
Hazard Statement(s): Causes skin irritation. Causes eye irritation. Suspected of damaging fertility of the unborn child. Causes damage to organs (liver) through prolonged or repeated exposure.
Pictogram(s):

Precautionary Statement(s): Prevention: Wash body thoroughly after handling. Wear protective gloves. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing, eye protection and face protection. Do not breathe dust, vapors. Do not eat, drink or smoke when using this product.

Response: If on skin: Wash with plenty of water. Specific treatment (see first aid section on this label). If skin irritation or rash occurs: Get medical attention. Take off all contaminated clothing and wash it before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue Rinsing If eye irritation persists: Get medical attention. If exposed or concerned: Get medical attention. Call a doctor if you feel unwell.

Storage: Store locked up.

Disposal: Dispose of contents/container in accordance with local regulations.
Descriptions of Hazards not otherwise classified: N/A
Percent of mixture with unknown acute toxicity: N/A

3. Composition and Information on Ingredients

Chemical Name	Common Name	CAS #	Concentration %
Water		7732-18-5	Trade Secret
Iodine		7553-56-2	Trade Secret
Potassium Iodide		7681-11-0	Trade Secret

4. First Aid Measures

Eye Contact: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Skin Contact: If on skin (or hair): Take off immediately all contaminated clothing and wash before reuse. Wash with plenty of water. If skin irritation occurs: Get medical advice/attention.
Inhalation: Remove to fresh air; give artificial respiration if breathing has stopped. Get medical advice/attention if you feel unwell.

Ingestion: Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention.
Symptoms: Irritation eyes, nose, throat; headache, dizziness. Large doses of iodine causes severe vomiting diarrhea, abdominal pain, thirst, shock, fever, delirium, stupor and death. Prolonged exposure to iodine compounds may produce iodism and deficiency of thyroid hormone.
Recommendations for immediate medical care/special treatment: Get medical advice/attention if you feel unwell.

5. Fire- Fighting Measures

Extinguishing Media: Dry chemical, carbon dioxide, alcohol foam, water.
Fire Hazards (Chemical): Not flammable.
Special Protective Equipment: Fire fighters should use self-contained breathing apparatus and protective clothing.
Precautions for Firefighters: Carbon monoxide and unidentified organic compounds may be formed during combustion.

6. Accidental Release Measures

Emergency Procedures: Evacuate the area of all unnecessary personnel. Wear suitable protective equipment. Eliminate all sources of ignition and provide ventilation.
Protective Equipment: See section 8
Environmental Precautions: Prevent release to the environment by using barriers.
Containment and Clean-Up Procedures: Use barriers to prevent spreading. Collect spill in container. Call waste authorities.

7. Handling and Storage

Handling: Do not breathe vapors. Do not eat, drink or smoke when using this product.
Storage: Store locked up. Store in a well-ventilated, cool place. Keep container tightly sealed when not in use.

8. Exposure Controls/Personal Protection

OSHA Permissible Exposure Limits (PELs):

Reagent	CAS #	OSHA PEL TWA
Iodine	7553-56-2	0.1 ppm, 1 mg/m3 Ceiling

ACGIH Threshold Limit Values (TLVs):

Reagent	CAS #	ACGIH PEL TLV	ACGIH STEL
Iodine	7553-56-2	0.1 ppm, 1 mg/m3 Ceiling	

Engineering Controls: Use in a well ventilated area to prevent exposure. Maintain eyewash fountain and quick-drench facilities in work areas.
Personal Protective Measures: Wear gloves, lab coat, eye protection and impervious footwear. Contact lenses should not be worn when working with this material.
Special PPE Requirements: If ventilation hood not available wear respirator.

9. Physical and Chemical Properties Section

Appearance: Purple Opague, Liquid
Molecular Weight: N/A
Molecular Formula: N/A
pH: N/A
Boiling Point and Boiling Range: 100ºC
Melting Point/Freezing Point: N/A
Flash Point: N/A
Specific Gravity/Relative Density: N/A
Odor: N/A

Odor Threshold: N/A
Color: Purple Opague
Flammability (solid/gas): N/A
Vapor Density: N/A
Upper/Lower flammability or explosive limits: N/A
Vapor Pressure: N/A
Evaporation Rate: N/A
Partition Coefficient: n-octanol/water: N/A
Viscosity: N/A
Auto-ignition temperature: N/A
Solubility: Miscible with water.
Decomposition Temperature: N/A

10. Stability and Reactivity

Reactivity:
Chemical Stability: Stable
Conditions of Stability/Instability: N/A
Stabilizers needed: None
Safety issue indicated by appearance change: N/A
Other: N/A
Hazardous Reactions: N/A
Hazardous Polymerization: Does not occur
Conditions to avoid: N/A
Classes of Incompatible Materials: Oxidizers, Strong Acids, Strong Bases
Hazardous Decomposition Products: Thermal-oxidation degradation can produce oxides of carbon. Toxic gases and vapors (I.e. Carbon monoxide) may be released in a fire.

11. Toxicological Information

Likely Routes of Exposure

Eyes: Irritation, may cause permanent damage.

Skin: Irritation, may cause contact dermatitis. Repeat excessive exposure to iodine compounds may cause rash, swelling of the vocal cords, severe generalized allergic reaction, join pain and swelling. Iodine is absorbed through intact skin.

Inhalation: Dizziness, headache. Irritation to nose, throat and respiratory system.

Ingestion: Nausea. Irritation to throat and respiratory system.

Signs or Symptoms of Exposure: Nausea. Prolonged exposure to iodides may produce iodism in sensitive individuals. Symptoms of exposure include: skin rash, running nose, headache and irritation of the mucous membrane. For severe cases the skin may show pimples, boils, hives, blisters and black and blue spots. Iodides are readily diffused across the placenta. Neonatal deaths from respiratory distress secondary to goiter have been reported. iodides have been known to cause drug-induced fevers, which are usually of short duration.

Effects from short term exposure (delayed, immediate, chronic): Irritation to the eyes, nose, throat; headache, dizziness, nausea. Large doses of iodine causes severe vomiting, diarrhea, abdominal pain, thirst, shock, fever, delirium, stupor and death. Prolonged exposure to iodine compounds may produce iodism and deficiency of thyroid hormone.

Acute Toxicity (Numerical Measures): Iodine: Oral, Mouse LD50 = 1000mg/kg

Carcinogenicity (NTP, IARC, OSHA): Does not contain any known carcinogens.

12. Ecological Information

Ecotoxicity: Iodine: Toxicity to fish: LC50-Oncorhynchus mykiss(rainbow trout)-1.7mg/l-96.0h Iodine: Toxicity to daphnia and other aquatic invertebrates:EC50-Daphnia magna(water flea)-0.2mg/l-48h

Persistence and degradability: N/A

Bioaccumulation Potential (octanol-water partition coefficient, BCF): N/A
Mobility in the soil: N/A
Adverse Environmental Effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.

13. Disposal Considerations

Recommended Disposal Containers: Check with your local waste authorities*
Recommended Disposal Methods: Do not dispose of in drains, check with your local waste authorities.*
Physical/Chemical Properties affecting Disposal: See section 2 and section 9 applicable information.*
Special Precautions for Landfill and Incineration Activities: Check with your local waste authorities.*
Waste Stream: Consult your local or regional authorities.*

14. Transport Information

UN Number: Not regulated.
UN Proper Shipping Name:
Transport Hazard Class(es):
Packing Group Number:
Environmental Hazards (IMDG code):
Marine Pollutant:
Transport in Bulk (IBC Code):
Special Transport Precautions:

15. Regulatory Information

OSHA:
DOT:
EPA:
CPSC:

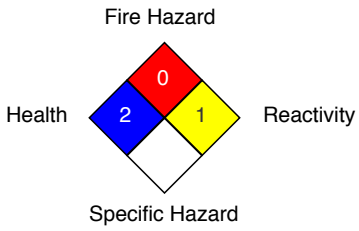
16. Other Information

Revision Date: 01/12/2015

NFPA

Health	2
Fire Hazard	0
Reactivity	1
Specific Hazard	

National Fire Protection Association (USA) NFPA



HMIS

Health	2
Flammability	0
Physical Hazard	1
Personal Protection	

Hazardous Material Information System HMIS

Health	2
Flammability	0
Physical Hazard	1
Personal Protection	

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