SAFETY DATA SHEET
Lugol’s Solution

1. Product and Company Identification
   Product Name: Lugol’s Solution
   Product Use: Contrast medium
   Restrictions: Hypersensitivity to iodine
   Contact:
   Premier Dental Products Company
   1710 Romano Drive
   Plymouth Meeting, PA 19462
   Phone: 610-239-6000  Fax: 610-239-6171
   Emergency Phone: 610-239-6000

2. Hazard(s) Identification
   2.1. Classification of the substance or mixture
      GHS-US classification
      Skin Irrit. 2
      Eye Irrit. 2A
      Skin Sens. 1
      Aquatic Acute 2

   2.2. Label elements
      GHS-US labeling
      Hazard pictograms (GHS-US)

      Signal word (GHS-US)  Warning
      Hazard statement (GHS-US)  Causes skin irritation
                                  May cause serious skin reaction
                                  Causes serious eye irritation
                                  Toxic to aquatic life

      Precautionary statements (GHS-US)
      Avoid breathing mist, vapors, spray.
      Wash exposed skin thoroughly after handling.
      Contaminated work clothing should be allowed out of the workplace.
      Avoid release to the environment.
      Wear protective gloves, eye protection.
      If on skin: Wash with plenty of soap and water.
      If in eyes: Rinse cautiously with water for several minutes.
      Remove contact lenses, if present and easy to do. Continue rinsing.
      If skin irritation persists: Get medical advice/attention.
      If eye irritation persists: Get medical advice/attention.
      Take off contaminated clothing and wash it before reuse.
      Dispose of contents/container to comply with local, state and federal regulations.

2.3. Other hazards
   Other hazards not contributing to the classification  None

2.4. Unknown acute toxicity (GHS-US)  No data available
3. Composition / Information on Ingredients

3.1. Substance
Not applicable

Full text of H-phase: see section 16

3.2. Mixture

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Description</th>
<th>% Range</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 7732-18-5</td>
<td>Water</td>
<td>85%</td>
<td>Not classified</td>
</tr>
<tr>
<td>CAS: 7681-11-0</td>
<td>Potassium Iodide</td>
<td>10%</td>
<td>Eye Irrit. 2B, H320</td>
</tr>
<tr>
<td>CAS: 7553-56-2</td>
<td>Iodine</td>
<td>5%</td>
<td>Acute Tox. 3 (Dermal)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4 (Inhalation)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Corr. 1C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Sens. 1B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute</td>
</tr>
</tbody>
</table>

4. First Aid Information

4.1. Description of the first-aid measure

First-aid measures general
Never give anything by mouth to an unconscious person. If person feels unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation
Assure fresh air breathing. Allow the victim to rest.

First-aid measures after skin contact
Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact
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.

First-aid measures after ingestion
Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation
May cause an allergic skin reaction

Symptoms/injuries after skin contact
Causes skin irritation

Symptoms/injuries after eye contact
Causes serious eye irritation

4.3. Indication of any immediate medical attention and special treatment needed
Obtain medical assistance

5. Fire-Fighting Information

5.1. Extinguishing media

Suitable extinguishing media
Any type

Unsuitable extinguishing media
Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard
Not flammable

Explosion hazard
Not applicable

5.3. Advice for firefighters

Firefighting instructions
Use water spray of fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.

Protection during firefighting
Use self-contained breathing apparatus and protective equipment.
6. Accidental Release Information

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment: Safety glasses, medical gloves and lab coat
Emergency procedures: Evacuate unnecessary personnel

6.1.2. For emergency responders

Protective equipment: Equipment cleanup crew with proper protection
Emergency procedures: Ventilate area

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public water. Avoid release to the environment.

6.3. Methods and material for containment and clean up

Methods for cleaning up: Soak up spills with inert solids. Collect spillage. Wash area with water/bleach solution, detergent or silver chloride solution.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

7. Handling and Storage

7.1. Precautions for safe handling

Precautions for safe handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid breathing mist, vapors and spray. Keep out of reach of children.

Hygiene measures: Wash exposed skin thoroughly after handling.

7.2. Conditions for safe storage including any incompatibilities

Storage conditions: Keep only in the original amber glass container in a cool, dry space. Keep container closed when not in use.

Incompatible products: Do not store in aluminum, carbon steel, copper, copper alloys, zinc or nickel containers.

Incompatible products: Sources of ignition and strong sunlight

7.3. Specific end use(s)
No additional information available

8. Exposure Controls / Personal Protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Source</th>
<th>Standard</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>PEL (Ceiling) (mg/m³)</th>
<th>PEL (Ceiling) (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
<td>ACGIH TWA</td>
<td>0.1 mg/m³</td>
<td></td>
<td>1 mg/m³</td>
<td>0.1 ppm</td>
</tr>
<tr>
<td>USA ACGIH</td>
<td>ACGIH TWA (ppm)</td>
<td>0.01 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA ACGIH</td>
<td>ACGIH STEL (mg/m³)</td>
<td></td>
<td>1 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>0.1 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (Ceiling)</td>
<td></td>
<td>1 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (Ceiling)</td>
<td></td>
<td></td>
<td></td>
<td>0.1 ppm</td>
</tr>
</tbody>
</table>
8.2. Exposure controls
Appropriate engineering controls
Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.

Personal protective equipment
Avoid all unnecessary exposure.

Hand protection
Wear protective gloves.

Eye protection
Goggles or safety glasses

Skin and body protection
General work/lab wear

Respiratory protection
Wear appropriate mask.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Boiling point</td>
<td>100°C</td>
</tr>
<tr>
<td>Vapor Pressure (mmHg)</td>
<td>Equal to water</td>
</tr>
<tr>
<td>Vapor density (air-l)</td>
<td>1</td>
</tr>
<tr>
<td>Order threshold</td>
<td>N/A</td>
</tr>
<tr>
<td>Coefficient of water/oil distribution</td>
<td>N/A</td>
</tr>
<tr>
<td>Scooped density</td>
<td>N/A</td>
</tr>
<tr>
<td>Odor</td>
<td>Acidic iodine (pungent) odor</td>
</tr>
<tr>
<td>Color</td>
<td>Dark brown or purple</td>
</tr>
<tr>
<td>Specific gravity (H₂O=1)</td>
<td>N/D</td>
</tr>
<tr>
<td>Percent volatile by volume (%)</td>
<td>N/A</td>
</tr>
<tr>
<td>Evaporation Rate (nBuOAc-1)</td>
<td>10%</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-15°C or lower</td>
</tr>
<tr>
<td>pH (1% solution)</td>
<td>“neutral”</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Completely miscible</td>
</tr>
<tr>
<td>Reserve alkalinity</td>
<td>N/D</td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

Stability: This product is stable under ordinary use and storage conditions.

Possible Hazardous Reactions/Conditions: None known

Conditions to Avoid: Avoid strong oxidizing agents or any metal.

Incompatibility (Materials to Avoid): Strong oxidizing agents and all fabrics.

Hazardous Decomposition/By Products: None established

Other Recommendations: Read and follow all directions for use.

11. Toxicological Information

11.1. Information on toxicological effects

Acute toxicity: Not classified

Iodine, Lugol’s, 5% w/v

<table>
<thead>
<tr>
<th>Compound</th>
<th>LD50 oral rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rate</td>
<td>4400 mg/kg</td>
</tr>
</tbody>
</table>

Iodine (CAS 7553-56-2)

<table>
<thead>
<tr>
<th>Compound</th>
<th>LD50 oral rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rate</td>
<td>14000 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rate</td>
<td>220 mg/kg</td>
</tr>
<tr>
<td>ATE (dermal)</td>
<td>1100.000 mg/kg bodyweight</td>
</tr>
<tr>
<td>ATE (dust, mist)</td>
<td>1.500 mg/I/4h</td>
</tr>
</tbody>
</table>

Potassium Iodine (CAS 7681-11-0)

<table>
<thead>
<tr>
<th>Compound</th>
<th>LD50 oral rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rate</td>
<td>1000 mg/kg</td>
</tr>
</tbody>
</table>

Water (CAS 7732-18-5)

<table>
<thead>
<tr>
<th>Compound</th>
<th>LD50 oral rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rate</td>
<td>≥ 90000 mg/kg</td>
</tr>
</tbody>
</table>
Skin corrosion/irritation
Causes skin irritation
Serious eye damage/irritation
Causes serious eye irritation
Respiratory of skin sensitization
May cause an allergic skin reaction
Carcinogenicity
Not classified

12. Ecological Information

12.1. Toxicity

Ecology – water
Toxic to aquatic life

Iodine, Lugol’s, 5% w/v

EC50 Daphnia 1
4 mg/l

Iodine (CAS 7553-56-2)
LC50 fishes 1
1.7 mg/l
EC50 Daphnia 1
0.2 mg/l

Potassium Iodine (CAS 7681-11-0)
LC50 fishes 1
2190 mg/l  96 h
EC50 Daphnia 1
2.7 mg/l  24 h

12.2. Persistence and degradability

Iodine, Lugol’s, 5% w/v
Persistence and degradability
Not established

Iodine (CAS 7553-56-2)
Persistence and degradability
Not established

Potassium Iodine (CAS 7681-11-0)
Persistence and degradability
Not established

Water (CAS 7732-18-5)
Persistence and degradability
Not established

12.3. Bioaccumulative potential

Iodine, Lugol’s, 5% w/v
Bioaccumulative potential
Not established

Iodine (CAS 7553-56-2)
Log Pow
2.49
Bioaccumulative potential
Not established

Potassium Iodine (CAS 7681-11-0)
Bioaccumulative potential
Not established

Water (CAS 7732-18-5)
Bioaccumulative potential
Not established

12.4. Mobility in soil
No additional information available
12.5. Other adverse effects
Other information
Avoid release to the environment

13. Disposal Considerations
13.1. Waste disposal methods
Waste disposal recommendation
Wash area with water and drain into disposal system. Dispose of contents/containers to comply with all federal, state/provincial and local regulations.

Ecology – waste materials
Avoid release to the environment.

14. Transport Information
DOT: Non-hazardous
Observe normal precautions for transporting liquid-filled glass containers.
All ingredients are listed on the TSCA list.
Product does not contain any chemical required to be reported under SARA 313.

ADR
Transport document description

Transport by sea
No additional information available

Air transport
No additional information available

15. Regulatory Information
15.1. US Federal regulations

Iodine (CAS 7553-56-2)
Listed on the United States TSCA inventory
SARA Section 311/312 Hazard Classes
Immediate (acute) health hazard
Delayed (chronic) health hazard

Potassium Iodine (CAS 7681-11-0)
Listed on the United States TSCA inventory
SARA Section 311/312 Hazard Classes
Immediate (acute) health hazard
Delayed (chronic) health hazard

Water (CAS 7732-18-5)
Listed on the United States TSCA inventory

15.2. US State regulations
No available information available

16. Other Information –
Premier’s revision date: 11/05/2015
Revision Number: 6
Other Information None

NFPA health hazard
1 - Exposure would cause irritation with only minor residual injury.
Classification system: NFPA ratings (scale 0-4)
NFPA fire hazard 0 – Materials that will not burn
NFPA reactivity 0 – Normally stable even under fire exposure conditions and are not reactive with water.

Health = 2
Fire = 0
Reactivity = 0

HMIS III Rating

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2</td>
<td>Minor injury may occur.</td>
</tr>
<tr>
<td>Flammability</td>
<td>0</td>
<td>Minimal Hazard</td>
</tr>
<tr>
<td>Physical</td>
<td>0</td>
<td>Minimal Hazard</td>
</tr>
<tr>
<td>Personal Protection</td>
<td></td>
<td>Safety Glasses gloves</td>
</tr>
</tbody>
</table>

HMIS ratings (scale 0 – 4)

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Supplier number: 092814

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