1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Iodine
Product Number : I8780
Brand : Sigma-Aldrich
Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # : (314) 776-6555

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : I2
Molecular Weight : 253.81 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7553-56-2</td>
<td>231-442-4</td>
<td>053-001-00-3</td>
<td>-</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
   Target Organ Effect
      Harmful by skin absorption.
Skin sensitizer
Corrosive
Target Organs
   Thyroid., Kidney, Endocrine system., Skin, Eyes, Reproductive system., Central nervous system

HMIS Classification
   Health Hazard: 3
   Chronic Health Hazard: *
   Flammability: 0
   Physical hazards: 0

NFPA Rating
   Health Hazard: 3
   Fire: 0
   Reactivity Hazard: 0

Potential Health Effects
Inhalation
May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin
Harmful if absorbed through skin. Causes skin burns.

Eyes
Causes eye burns.

Ingestion
May be harmful if swallowed. Causes burns.

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties
Flash point no data available
Ignition temperature no data available

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters
Wear self-contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods for cleaning up
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Storage
Keep container tightly closed in a dry and well-ventilated place.

Handle and store under inert gas. Hygroscopic

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters
<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
</table>

Sigma-Aldrich - I8780
Sigma-Aldrich Corporation
www.sigma-aldrich.com
Iodine 7553-56-2  CEIL 0.1 ppm 1 mg/m³ 1994-09-01  US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004: Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs)

CEIL 0.1 ppm 1 mg/m³ 1989-03-01  US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A

CEIL 0.1 ppm 1 mg/m³ 1993-06-30  US. Department of Labor - Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) 29 CFR 1910.1000 Air Contaminants.

Personal protective equipment

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves.

**Eye protection**
Safety glasses

**Skin and body protection**
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**
- **Form**: solid
- **Colour**: black, violet
- **Odour**: pungent

**Safety data**
- **pH**: 5.4
Melting point 113.5 °C (236.3 °F)
Boiling point 184.4 °C (363.9 °F) at 1,013 hPa (760 mmHg)
Flash point no data available
Ignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Vapour pressure 0.41 hPa (0.31 mmHg) at 25 °C (77 °F)
Density 4.930 g/cm3
Water solubility no data available
Partition coefficient: n-octanol/water log Pow: 2.49
Relative vapour density 8.76 - (Air = 1.0)

10. STABILITY AND REACTIVITY

Storage stability
Stable under recommended storage conditions.

Materials to avoid
Rubber, Plastics, Iron and iron salts., Sulphur compounds, Ammonia, Magnesium, Zinc, Aluminum, Metals, Alkalis, Antimony salts, Arsenites, bromides, chlorides, iodides, thiocyanates, ferrous salts, hypophosphites, morphine salts, oils, creosote, phosphates, tannins, tartrates, Mixing iodine, antimony, and ammonia resulted in an explosion. A violent reaction occurs between iodine and acetaldehyde., Acetylene, Acetaldehyde

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - rat - 14,000 mg/kg

Irritation and corrosion
no data available

Sensitisation
May cause allergic skin reaction.

Chronic exposure

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Signs and Symptoms of Exposure
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.

**Potential Health Effects**

- **Inhalation**: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
- **Skin**: Harmful if absorbed through skin. Causes skin burns.
- **Eyes**: Causes eye burns.
- **Ingestion**: May be harmful if swallowed. Causes burns.
- **Target Organs**: Thyroid, Kidney, Endocrine system, Skin, Eyes, Reproductive system, Central nervous system.

### 12. ECOLOGICAL INFORMATION

**Elimination information (persistence and degradability)**

no data available

**Ecotoxicity effects**

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>LC50 - Oncorhynchus mykiss (rainbow trout) - 1.7 mg/l - 96 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates.</td>
<td>EC50 - Daphnia magna (Water flea) - 0.2 mg/l - 48 h</td>
</tr>
</tbody>
</table>

**Further information on ecology**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic organisms.

### 13. DISPOSAL CONSIDERATIONS

**Product**

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

### 14. TRANSPORT INFORMATION

**DOT (US)**

- UN-Number: 1759
- Class: 8
- Packing group: II
- Proper shipping name: Corrosive solids, n.o.s. (Iodine)

**IMDG**

- UN-Number: 1759
- Class: 8
- Packing group: II
- EMS-No: F-A, S-B
- Proper shipping name: CORROSIVE SOLID, N.O.S. (Iodine)
- Marine pollutant: No

**IATA**

- UN-Number: 1759
- Class: 8
- Packing group: II
- Proper shipping name: Corrosive solid n.o.s. (Iodine)

### 15. REGULATORY INFORMATION
OSHA Hazards
Target Organ Effect, Harmful by skin absorption., Skin sensitizer, Corrosive

TSCA Status
On TSCA Inventory

DSL Status
All components of this product are on the Canadian DSL list.

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Iodine
CAS-No. 7553-56-2
Revision Date 1989-12-01

Pennsylvania Right To Know Components

Iodine
CAS-No. 7553-56-2
Revision Date 1989-12-01

New Jersey Right To Know Components

Iodine
CAS-No. 7553-56-2
Revision Date 1989-12-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION

Further information
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