Iodine
MSDS# 11400

Section 1 - Chemical Product and Company Identification

MSDS Name: Iodine

Synonyms: None.

Company Identification: Fisher Scientific UK
Bishop Meadow Road, Loughborough
Leics. LE11 5RG
For information in Europe, call: (01509) 231166
Emergency Number, Europe: 01509 231166

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>7553-56-2</th>
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<tbody>
<tr>
<td>Chemical Name</td>
<td>Iodine</td>
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<td>%</td>
<td>&gt;99</td>
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<tr>
<td>EINECS#</td>
<td>231-442-4</td>
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Hazard Symbols:
- XN N

Risk Phrases:
- 20/21 50

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Harmful by inhalation and in contact with skin. Very toxic to aquatic organisms.

Potential Health Effects

Eye:
Causes severe eye irritation. May cause eye burns. Vapors cause eye irritation.

Skin:
Harmful if absorbed through the skin. May cause severe irritation and possible burns. Rare instances of allergic reactions to topical iodine solutions characterized by fever and generalized skin eruptions have lead to death. At least one death after topical application of a strong iodine tincture to one-third of the body has been recorded.

Ingestion:
Harmful if swallowed. May cause burns to the digestive tract.

Inhalation:
Harmful if inhaled. Causes severe respiratory tract irritation. Extreme exposures could result in a build-up of fluid in the lungs (pulmonary edema) that might be fatal in severe cases.

Chronic:
Chronic exposure can lead to iodism characterized by headache, excess salivation, nasal discharge, conjunctivitis, laryngitis, bronchitis, stomatitis, enlarged submaxillary glands, and skin rashes. Chronic ingestion of iodides during pregnancy has resulted in fetal death, severe goiter, and cretinoid appearance of the
newborn. Chronic exposure can affect thyroid function. Some references (e.g. Dreisbach's Handbook) say that iodine and iodine compounds are potent sensitizers and that repeated contact may cause sensitivity dermatitis, laryngeal edema, serum sickness with lymph node enlargement, and joint pain and swelling.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

Ingestion: POISON material. If swallowed, get medical aid immediately. Only induce vomiting if directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Substance is noncombustible. Vapors may accumulate in confined spaces.

Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale.

Storage: Store in a cool, dry place. Store in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should
be equipped with an eyewash facility and a safety shower.

Exposure Limits
CAS# 7553-56-2:
United Kingdom, WEL - STEL: 0.1 ppm STEL; 1.1 mg/m3 STEL
United States OSHA: ; 0.1 ppm Ceiling; 1 mg/m3 Ceiling
Belgium - TWA: 0.1 ppm TWA; 1 mg/m3 TWA
France - VLE: 0.1 ppm VLCT; 1 mg/m3 VLCT
Japan: 0.1 ppm OEL; 1 mg/m3 OEL
Malaysia: 0.1 ppm Ceiling; 1.0 mg/m3 Ceiling
Netherlands: 0.1 ppm MAC; 1 mg/m3 MAC
Spain: 0.1 ppm VLA-EC; 1 mg/m3 VLA-EC

Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties
Physical State: Solid
Color: black-violet
Odor: iodine-like
pH: Not available
Vapor Pressure: 0.3 mm Hg @ 20 deg C
Viscosity: Not available
Boiling Point: 184 deg C (363.20 F)
Freezing/Melting Point: 113 deg C (235.40 F)
Autoignition Temperature: Not applicable
Flash Point: Not applicable.
Explosion Limits: Lower: Not available
Explosion Limits: Upper: Not available
Decomposition Temperature: Not applicable
Solubility in water: 0.034 g/100 ml @ 25 C
Specific Gravity/Density: 4.93
Molecular Formula: I₂
Molecular Weight: 253.81

Section 10 - Stability and Reactivity
Chemical Stability: Stable. Substance is sublimable, able to go directly from solid to vapor.
Conditions to Avoid: Dust generation, excess heat.
Incompatibilities with Other Materials
Active metals, ammonia, fluorine, liquid chlorine, acetaldehyde, acetylene, carbides, powdered aluminum.
Hazardous Decomposition Products
Hydrogen iodide.
Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

RTECS#:  CAS# 7553-56-2: NN1575000
LD50/LC50:
RTECS: CAS# 7553-56-2: Oral, mouse: LD50 = 22 gm/kg;
Oral, mouse: LD50 = 1000 mg/kg; Oral, rabbit: LD50 = 10
gm/kg; Oral, rat: LD50 = 14 gm/kg;.
Other: Oral LDLo human: 28 mg/kg (RTECS).
Carcinogenicity:
   Iodine -
   Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
   Other:
      See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Not available

Section 13 - Disposal Considerations
Products considered hazardous for supply are classified as Special
Waste and the disposal of such chemicals is covered by regulations
which may vary according to location.
Contact a specialist disposal company or the local authority or
advice. Empty containers must be decontaminated before returning for
recycling.

Section 14 - Transport Information

IATA
Shipping Name: CORROSIVE SOLID, TOXIC, N.O.S.*
Hazard Class: 8 (6.1)
UN Number: 2923
Packing Group: II

IMO
Shipping Name: CORROSIVE SOLID, TOXIC, N.O.S.
Hazard Class: 8 (6.1)
UN Number: 2923
Packing Group: II

RID/ADR
Shipping Name: CORROSIVE SOLID, TOXIC, N.O.S.
Hazard Class: 8 (6.1)
UN Number: 2923
Packing Group: II

Severe Marine Pollutant

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN N
Risk Phrases:
   R 20/21 Harmful by inhalation and in contact with
   skin.
   R 50 Very toxic to aquatic organisms.

Safety Phrases:
   S 23 Do not inhale gas/fumes/vapour/spray.
   S 25 Avoid contact with eyes.
   S 61 Avoid release to the environment. Refer to
special instructions/safety data sheets.

WGK (Water Danger/Protection)
   CAS# 7553-56-2: 1

Canada
CAS# 7553-56-2 is listed on Canada's DSL List
US Federal
TSCA
CAS# 7553-56-2 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date:
12/12/1997
Revision #10 Date
5/17/2007
Revisions were made in Sections:
3, 15

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