Safety Data Sheet

Infosafe No™ 1CH37 Issue Date: September 2015 RE-ISSUED by CHEMSUPP

Product Name: IODINE

Classified as hazardous

1. Identification

<table>
<thead>
<tr>
<th>GHS Product Identifier</th>
<th>IODINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name</td>
<td>CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)</td>
</tr>
<tr>
<td>Address</td>
<td>38 - 50 Bedford Street GILLMAN SA 5013 Australia</td>
</tr>
<tr>
<td>Telephone/Fax Number</td>
<td>Tel: (08) 8440-2000 Fax: (08) 8440-2001</td>
</tr>
<tr>
<td>Recommended use of the chemical and restrictions on use</td>
<td>Laboratory reagent, dyes (aniline dyes, phthalein dyes), alkylation and condensation catalyst, iodides, iodates, x-ray contrast media, food and feed additive, stabilizers, photographic film, water treatment, pharmaceuticals, medicinal soaps, unsaturation indicator, germicides and antiseptics.</td>
</tr>
<tr>
<td>Other Names</td>
<td>IODINE LR IL005</td>
</tr>
<tr>
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<td>IODINE AR IA005</td>
</tr>
</tbody>
</table>

2. Hazard Identification

| GHS classification of the substance/mixture | Hazardous to the Aquatic Environment - Acute Hazard: Category 1 |
| Signal Word(s) | WARNING |
| Hazard Statement(s) | H312 Harmful in contact with skin. |
| Hazard Statement(s) | H332 Harmful if inhaled. |
| Hazard Statement(s) | H400 Very toxic to aquatic life. |

Precautionary statement – Prevention

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P273 Avoid release to the environment.

Precautionary statement – Response

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P363 Wash contaminated clothing before reuse.

3. Composition/information on ingredients

| Chemical Characterization | Solid |
| Ingredients | Iodine |
| Name | Iodine |
| CAS | 7553-56-2 |
| Proportion | 100 % |
| Hazard Symbol | Xn |
| Risk Phrase | R20/21 |

4. First-aid measures

Chemical Characterization

Solid

Ingredients

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<th>Proportion</th>
<th>Hazard Symbol</th>
<th>Risk Phrase</th>
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Inhalation
If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Immediately obtain medical aid if cough or other symptoms appear.

Ingestion
Rinse mouth thoroughly with water immediately. Give plenty of water to drink. Never give anything by mouth to an unconscious person. If swallowed, do NOT induce vomiting. Seek medical attention.

Skin
Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. Seek medical advice if effects persist.

Eye contact
Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.

First Aid Facilities
Maintain eyewash fountain and safety shower in work area.

Advice to Doctor
Treat symptomatically.

Other Information
For advice, contact the National Poisons Information Centre (Phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Hazards from Combustion Products
Liberates toxic hydrogen iodide fumes in fire.

Specific Methods
Small fire: Use dry chemical, CO2 or water spray.
Large fire: Use water spray, fog or foam - Do NOT use water jets.
If safe to do so, move undamaged containers from the fire area. Cool containers with flooding quantities of water until well after the fire is out. Avoid getting water inside the containers.

Specific hazards arising from the chemical
Material does not burn. Fire or heat will produce irritating, poisonous and/or corrosive gases. Containers may explode when heated.

Hazchem Code
2WE

Precautions in connection with Fire
Wear SCBA and chemical splash suit. Fully encapsulating, gas-tight suits should be worn for maximum protection. Structural firefighter's uniform is NOT effective for these materials.

6. Accidental release measures

Spills & Disposal
Eliminate all ignition sources (no smoking, flares, sparks or flame) within at least 50m. Do NOT touch or walk through this product. Do NOT touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if safe to do so. Prevent entry into waterways, drains, confined areas.
Small spills: React with sodium thiosulfate and wash to drain with large quantities of water. Wash area down with sodium thiosulfate and then water.
Large spills: Cover with DRY earth, sand or other non-combustible material followed by plastic sheet to minimize spreading or contact with rain. Collect material in a plastic bag contained inside another plastic bag and place into loosely-covered plastic containers for later disposal.
DO NOT GET WATER INSIDE CONTAINERS.

Personal Precautions
Avoid substance contact. Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms.

Personal Protection
Wear protective clothing specified for normal operations (see Section 8)

Clean-up Methods - Small Spillages
Sweep up (avoid generating dust) and remove to a suitable, clearly labelled container for disposal in accordance with local regulations.

Environmental Precautions
Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

7. Handling and storage

Precautions for Safe Handling
Work under fume extractor. Do not inhale substance. Change contaminated clothing. Wash hands after working with substance.

Conditions for safe storage, including any incompatibilities
Store in well ventilated area. Keep containers closed at all times.
Protect from direct sunlight and moisture. Store at room temperature (15 to 25 °C recommended).

Storage Regulations
Refer Australian Standard AS/NZS 4452:1997 'The storage and handling of toxic substances'.

8. Exposure controls/personal protection
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### Occupational exposure limit values

<table>
<thead>
<tr>
<th>Name</th>
<th>STEL</th>
<th>TWA</th>
<th>Footnote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine</td>
<td>mg/m³</td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0.1</td>
<td>Peak limitation</td>
</tr>
</tbody>
</table>

### Other Exposure Information

A time weighted average (TWA) has been established for Iodine (Safe Work Australia) of 1 mg/m³, (0.1 ppm) - Peak Limitation.

The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.

'Peak Limitation' - a ceiling concentration which should not be exceeded over a measurement period which should be as short as possible but not exceeding 15 minutes.

In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. Recommendation: Fume cupboard.

### Respiratory Protection

Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

### Eye Protection

The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336. Recommendation: Goggles or face-shield.

### Hand Protection

Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance.

Recommendation: Vinyl gloves.

### Personal Protective Equipment

Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.

### Footwear


### Body Protection

Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

### Hygiene Measures

Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

### 9. Physical and chemical properties

#### Form

Solid

#### Appearance

Heavy grayish-black crystals; granules with metallic lustre; brittle plates, greyish violet in colour with a metallic sheen.

#### Odour

Pungent odour.

#### Melting Point

113.5 °C

#### Boiling Point

184.5 °C

#### Solubility in Water

Practically insoluble.

#### Solubility in Organic Solvents

Soluble in alcohol, carbon disulfide, chloroform, ether, carbon tetrachloride, glycerol and alkaline iodide solutions.

#### Specific Gravity

4.93

#### Vapour Pressure

0.41 hPa @ 25 °C

#### Vapour Density (Air=1)

8.8

#### Partition Coefficient: logP(o/w)

2.49

#### n-octanol/water

Non combustible material.

#### Molecular Weight

253.81

#### Other Information

Readily sublimed to a violet vapour. Semiconductor.
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10. Stability and reactivity

**Chemical Stability**
Stable under normal use conditions.

**Conditions to Avoid**
Incompatibilities.

**Incompatible Materials**
Alkali metals, alkali oxides, ammonia, ammonium compounds, antimony powder, acetylene, aluminium, azides, carbides, damp aluminium, ethanol/phosphorous, fluorine, halogen fluorides, halogen-halogen compounds, magnesium, nonmetallic oxides, nonmetals, semimetals, metals in powder form, lithium silicide, tetra amine copper, turpentine oils and/or turpentine substitutes, sulfate/ethanol, some metal acetyldes, and zinc powders and potassium.

**Hazardous Decomposition Products**
May liberate toxic fumes in fire.

**Possibility of hazardous reactions**
Explosive products are produced when iodine is reacted with ammonia, tetra amine copper, sulfate/ethanol. Violent reactions occur with ethanol/phosphorous, fluorine, halogen fluorides, some metal acetyldes and carbides. Mixtures of iodine with antimony powder may ignite. Mixtures of iodine with aluminium, magnesium and zinc powders ignite when damp. Mixed with potassium is a weak impact explosive.

**Hazardous Polymerization**
Will not occur.

11. Toxicological Information

**Acute Toxicity - Oral**
LD50 (rat) 14000 mg/kg.

**Ingestion**
Harmful if swallowed. Symptoms are disagreeable metallic taste, gastric upset, violent abdominal pain, bloody diarrhea, fever and severe collapse with feeble pulse. Collapse may be delayed until the second day.

**Inhalation**
Harmful if inhaled. Causes severe irritation to the mucous membrane and respiratory tract. Symptoms are similar to ingestion.

**Skin**
Slight irritation.

**Eye**
Slight irritation.

**Carcinogenicity**
No evidence of carcinogenic properties.

**Chronic Effects**
Symptoms of chronic poisoning are skin lesions, headache and allergic reactions with rhinitis, conjunctivitis, bronchitis and asthma. In severe cases there may be weakness, anaemia, loss of weight and general depression. These symptoms are normally refered to as iodism. Certain individuals are highly sensitive to iodine and iodides and the symptoms of iodism may occur after exposure to minute amounts of iodine or iodides.

**Mutagenicity**
No evidence of mutagenic properties.

12. Ecological information

**Ecotoxicity**
Very toxic to aquatic organisms.

**Persistence and degradability**
Methods for the determination of biodegradability are not applicable to inorganic substances.

**Bioaccumulative Potential**
No appreciable bioaccumulation is to be expected (log P(o/w) 1-3).

**Environmental Protection**
Do not allow product to enter drains, waterways or sewers.

**Other Information**
Do not allow to enter waters, waste water, or soil!

13. Disposal considerations

**Disposal Considerations**
Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and disposed of according to relevant local, state and federal government regulations.

**Waste Disposal**
Inorganic peroxides and oxidants as well as bromine and iodine should be rendered harmless by reduction with acidic aqueous sodium thiosulfate solution.

14. Transport information

**Transport Information**
Dangerous Goods of Class 8 Corrosives are incompatible in a placard load with any of the following: Class 1, Class 4.3, Class 5, Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are alkalis and Class 7; and are incompatible with food and food packaging in any
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U.N. Number: 3495
Transport hazard class(es): Class 8
Sub.Risk: Sub Risk 6.1
Hazchem Code: 2WE
EPG Number: 37
UN Number (Road Transport): UN 3495 proper shipping name: IODINE
Marine Pollutant: IMDG Marine pollutant: Yes

15. Regulatory information
Regulatory Information: Listed in the Australian Inventory of Chemical Substances (AICS).
Poisons Schedule: S6

16. Other Information

Literature References
'Standard for the Uniform Scheduling of Medicines and Poisons No. 6', Commonwealth of Australia, February 2015.
Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'.
Safe Work Australia, 'Hazardous Substances Information System, 2005'.
Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'.

Contact Person/Point
Paul McCarthy Ph. (08) 8440 2000

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Empirical Formula: I2
Structural Formula: ...

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