

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 06.11.2012

Revision: 06.11.2012

### 1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** Iodine
- **Article number:** 50-2300-05
- **CAS Number:**  
7553-56-2
- **EC number:**  
231-442-4
- **Index number:**  
053-001-00-3
- **Registration number** 01-2119485285-30
- **Relevant identified uses of the substance or mixture and uses advised against**  
As an intermediate for the next synthetic step in manufacturing of X-ray contrast agents.
- **Sector of Use**  
SU8 Manufacture of bulk, large scale chemicals (including petroleum products)  
SU9 Manufacture of fine chemicals  
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- **Product category** PC19 Intermediate
- **Process category**  
PROC1 Use in closed process, no likelihood of exposure  
PROC2 Use in closed, continuous process with occasional controlled exposure  
PROC3 Use in closed batch process (synthesis or formulation)  
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises  
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)  
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities  
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
PROC15 Use as laboratory reagent
- **Environmental release category**  
ERC2 Formulation of preparations  
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)  
ERC7 Industrial use of substances in closed systems
- **Application of the substance / the preparation**  
Used in medicine, photography, and dyes.  
Laboratory chemical.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
APT Chemicals International Limited  
Sandy Lane Industrial Estate  
Stourport-on-Severn  
Worcestershire  
DY13 9QB  
  
Tel: 0044 1299 827699  
Fax: 0044 1299 827696  
e-mail: info@aptchemicals.com
- **Further information obtainable from:** Product safety department.
- **Emergency telephone number:** Tel: 0044 1299 827699 (not 24 hours)

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### 2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.



GHS07

Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xn; Harmful

R20/21: Harmful by inhalation and in contact with skin.



N; Dangerous for the environment

R50: Very toxic to aquatic organisms.

- **Information concerning particular hazards for human and environment:** Not applicable.

- **Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms** GHS07, GHS09

- **Signal word** Warning

- **Hazard statements**

H312+H332 Harmful in contact with skin or if inhaled.

H400 Very toxic to aquatic life.

- **Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P273 Avoid release to the environment.

P270 Do not eat, drink or smoke when using this product.

P260 Do not breathe vapours.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization:** Substances

- **CAS No. Description**

7553-56-2 Iodine

- **Identification number(s)**

- **EC number:** 231-442-4

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#### 4 First aid measures

- **Description of first aid measures**
- **General information:**  
Immediately remove any clothing soiled by the product.  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.  
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**  
Immediately wash with water and soap and rinse thoroughly.  
If skin irritation continues, consult a doctor.
- **After eye contact:**  
Check for and remove any contact lenses.  
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**  
**DO NOT DELAY!**  
Rinse out mouth and then drink plenty of water.  
Call a doctor immediately.  
Never give anything by mouth (oral) to an unconscious person. Administer activated charcoal as a slurry (30 g charcoal/240 mL water). Usul dose: 25 to 100 g in adults, 25 to 50 g in children (1-12 years), and 1 g/kg in infants less than 1 year old.
- **Information for doctor:** Treat symptomatically and supportively.
- **Most important symptoms and effects, both acute and delayed**  
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

#### 5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
- **For safety reasons unsuitable extinguishing agents:** Foam
- **Special hazards arising from the substance or mixture**  
Not combustible but enhances combustion of other substances.  
Many reactions may cause fire or explosion.  
Gives off irritating or toxic fumes (or gases) in a fire.
- **Advice for firefighters**
- **Protective equipment:**  
Wear self-contained respiratory protective device.  
Do not inhale explosion gases or combustion gases.  
Wear fully protective suit.

#### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Avoid formation of dust.

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RPE: filter respirator for inorganic gases, vapours and halogens.

- **Environmental precautions:**

Do not allow to enter sewers/ surface or ground water.

Do not allow to penetrate the ground/soil.

- **Methods and material for containment and cleaning up:**

Ensure adequate ventilation.

Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting.

Carefully collect remainder, then remove to safe place.

Do NOT absorb in saw-dust or other combustible absorbents.

Do NOT let this chemical enter the environment.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

### 7 Handling and storage

- **Handling:**

- **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of dust.

Avoid direct contact (skin contact, ingestion and/or inhalation of fume/mist/dust) with the product.

Safety showers and eye wash facilities should be available at the work area.

- **Information about fire - and explosion protection:** No special measures required.

- **Conditions for safe storage, including any incompatibilities**

- **Storage:**

- **Requirements to be met by storerooms and receptacles:**

Prevent any seepage into the ground.

Do not store on combustible materials such as wooden floors or wooden pallets.

- **Information about storage in one common storage facility:**

Store away from foodstuffs.

Store away from flammable substances.

- **Further information about storage conditions:**

Store in cool, dry conditions in well sealed receptacles.

Store in a banded area.

- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

<b>7553-56-2 Iodine</b>
WEL Short-term value: 1.1 mg/m <sup>3</sup> , 0.1 ppm

- **DNELs**

- **WORKERS**

Long-term exposure - systemic effects

Dermal DN(M)EL

- DNEL (Derived No Effect Level): 0.01 mg/kg bw/day

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 0.07 mg/m<sup>3</sup>

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- **PNECs**
  - PNEC aqua (freshwater): 18.13 µg/L
  - PNEC aqua (marine water): 60.01 µg/L
  - PNEC STP: 11 mg/L
  - PNEC sediment (freshwater): 3.99 mg/kg sediment dw
  - PNEC sediment (marine water): 20.22 mg/kg sediment dw
  - PNEC soil: 5.95 mg/kg soil dw
  - PNEC oral: No potential for bioaccumulation
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
  - Select PPE appropriate for the operations taking place taking into account the product properties.
- **General protective and hygienic measures:**
  - Keep away from foodstuffs, beverages and feed.
  - Wash hands before breaks and at the end of work.
  - Avoid contact with the eyes and skin.
  - Do not inhale gases / fumes / aerosols.
  - Do not breath dust
  - Do not eat, drink, smoke or sniff while working.
  - Storing food in the working area is prohibited.
  - A safe system of work must be formulated and followed to ensure safe working with this product.
  - Relevant workers must receive suitable and sufficient training and supervision.
  - Take note of assigned Workplace Exposure Limits.
- **Respiratory protection:**
  - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
  - RPE: filter respirator for inorganic gases, vapours and halogens.
- **Protection of hands:**
  - 
Protective gloves
  - The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  - Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
  - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**
  - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses
- **Body protection:** Impervious protective clothing

## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

<b>Form:</b>	Crystalline
<b>Colour:</b>	Violet
<b>Odour:</b>	Characteristic
<b>Odour threshold:</b>	Not determined.

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· <b>pH-value:</b>	Not applicable.
· <b>Change in condition</b>	
<b>Melting point/Melting range:</b>	113.6 °C
<b>Boiling point/Boiling range:</b>	184.35 °C
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	Product is not flammable.
· <b>Ignition temperature:</b>	
<b>Decomposition temperature:</b>	Not determined.
· <b>Self-igniting:</b>	Not determined.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
· <b>Vapour pressure at 20 °C:</b>	0.35 hPa
· <b>Density at 20 °C:</b>	4.93 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not applicable.
· <b>Evaporation rate</b>	Not applicable.
· <b>Solubility in / Miscibility with water at 20 °C:</b>	0.34 g/l
· <b>Partition coefficient (n-octanol/water):</b>	2.49 log POW
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not applicable.
<b>Kinematic:</b>	Not applicable.
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.  
Not combustible but enhances combustion of other substances.  
Gives off irritating or toxic fumes (or gases) in a fire.
- **Possibility of hazardous reactions**  
Many reactions may cause fire or explosion.  
The substance is a strong oxidant and reacts with combustible and reducing materials.  
Reacts violently with metal powders, antimony, ammonia, acetaldehyde, acetylene causing fire and explosion hazard.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**  
Combustible and reducing materials.  
Metal powders, antimony, ammonia, acetaldehyde, acetylene.
- **Hazardous decomposition products:** Upon heating, toxic fumes are formed.

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### 11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values relevant for classification:**

Dermal	LD50	1425 mg/kg (rabbit)
Inhalative	LC50/4 h	>4.58 mg/l (rat)

- **Primary irritant effect:**

- **on the skin:** No irritant effect.

- **on the eye:** No irritating effect.

- **Sensitization:** No sensitizing effects known.

- **Subacute to chronic toxicity:**

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: Repeated or prolonged contact may cause skin sensitization in rare cases. Repeated or prolonged inhalation exposure may cause asthma-like syndrome (RADS). The substance may have effects on the thyroid.

- **Additional toxicological information:**

ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation of its vapour, through the skin and by ingestion.

INHALATION RISK: A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20 °C.

EFFECTS OF SHORT-TERM EXPOSURE: Lachrymation. The substance is severely irritating to the eyes and the respiratory tract, and is irritating to the skin. Inhalation of the vapour may cause asthma-like reactions (RADS). Inhalation of the vapour may cause lung oedema. The effects may be delayed. Medical observation is indicated.

### 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

EC50	0.59 mg/kg (daphnia)
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- **Persistence and degradability** No further relevant information available.

- **Behaviour in environmental systems:**

- **Bioaccumulative potential** Product is not expected to bioaccumulate.

- **Mobility in soil** No further relevant information available.

- **Ecotoxicological effects:**

- **Remark:** Very toxic for fish

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

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### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system. Contact waste processors for recycling information.  
Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.
- **European waste catalogue**  
Waste key numbers in accordance with the European Waste catalogue (EWC) are origin-referred defined. Since this product is used in several industries, no waste key can be provided by the supplier. The waste key number should be determined in arrangement with your waste disposal partner or the responsible authority.
- **Uncleaned packaging:**
- **Recommendation:**  
Container remains hazardous when empty. Continue to observe all precautions.  
Disposal must be made according to official regulations.

### 14 Transport information

<ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>	UN3495
<ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG</b></li> <li>· <b>IATA</b></li> </ul>	3495 IODINE, ENVIRONMENTALLY HAZARDOUS IODINE, MARINE POLLUTANT IODINE
<ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>ADR, IMDG</b></li> </ul>	<div style="display: flex; align-items: center; gap: 10px;">   </div>
<ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	8 Corrosive substances. 8
<ul style="list-style-type: none"> <li>· <b>IATA</b></li> </ul>	<div style="display: flex; align-items: center; gap: 10px;">  </div>
<ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	8 Corrosive substances. 8
<ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>	III
<ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> <li>· <b>Marine pollutant:</b></li> <li>· <b>Special marking (ADR):</b></li> </ul>	Environmentally hazardous substance, solid; Marine Pollutant Yes (P) Symbol (fish and tree) Symbol (fish and tree)

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· <b>Special precautions for user</b>	Warning: Corrosive substances.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Limited quantities (LQ)</b>	5Kg
· <b>Tunnel restriction code</b>	E
· <b>UN "Model Regulation":</b>	UN3495, IODINE, ENVIRONMENTALLY HAZARDOUS, 8, III

### 15 Regulatory information

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS:** Product safety department.
- **Abbreviations and acronyms:**
  - RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
  - IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
  - ICAO: International Civil Aviation Organization
  - ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

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