





Substance	Hazard	Comment
<b>Iodine</b> <i>Solid</i>	  <b>HARMFUL ENVIRONMENTAL HAZARD</b>	WARNING: harmful in contact with skin and if inhaled. Very toxic to aquatic life. It is easily vapourised if heated – the violet vapour is dangerous to the eyes. For a 15 minute exposure, the concentration in the atmosphere should not exceed 1.1 mg m <sup>-3</sup> .
<b>Iodine solution</b> <i>in potassium iodide / water or in organic solvent (if 1 M or more)</i>	  <b>HARMFUL ENVIRONMENTAL HAZARD</b>	WARNING: harmful in contact with skin and if inhaled. Very toxic to aquatic life. Even dilute solutions will stain the skin. There may be hazards associated with the organic solvent; see relevant <i>CLEAPSS Student Safety Sheets</i> . Ethanol is often used; it is HIGHLY FLAMMABLE.
<b>Dilute iodine solution</b> <i>in potassium iodide / water or in organic solvent (if less than 1 M)</i>	<b>Currently not classified as hazardous</b>	Even dilute solutions will stain the skin. Solutions 0.01 to 0.1 M are suitable for many activities, eg testing for starch, work with enzymes etc. There may be hazards associated with the organic solvent; see relevant <i>CLEAPSS Student Safety Sheets</i> . Ethanol is often used; it is HIGHLY FLAMMABLE. 'Tincture of iodine', used as a mild antiseptic, is a dilute solution in ethanol (about 0.1 M).

### Typical control measures to reduce risk

- Use the lowest concentration and smallest volume possible.
- Wear eye protection.
- Wear gloves when transferring or dispensing large quantities of the solid or more-concentrated solutions.
- Avoid breathing iodine vapour, eg by using a fume cupboard.

### Assessing the risks

- What are the details of the activity to be undertaken? What are the hazards?
- What is the chance of something going wrong?
- How serious would it be if something did go wrong?  
*Note: iodine can crystallise painfully on the eyeball.*
- How can the risk(s) be controlled for this activity?  
*eg can it be done safely? Does the procedure need to be altered? Should goggles or safety spectacles be worn?*

### Emergency action

In all emergency situations, alert the responsible adult immediately. Be aware that actions may include the following:

- In the eye                      Irrigate the eye with gently-running tap water for at least 20 minutes. Call 999/111.
- Vapour breathed in            Remove the casualty to fresh air. Call 999/111 if breathing is even slightly affected.
- Swallowed                      Do no more than rinse and spit with drinking water. Do not induce vomiting. Call 999/111.
- Spilt on the skin or clothing    Brush off solid iodine. Remove and soak contaminated clothing. Irrigate the affected area with gently-running tap water for at least 20 minutes. Call 999/111 if a large area is affected or symptoms occur.
- Spilt on the floor, bench, etc    Scoop up any solid iodine, add sodium thiosulfate solution (20%, 1 M) to the remaining spill and leave for 1 hour. Mop up and rinse with plenty of water.