

Halogenoalkanes: bromo- and iodoalkanes

including 1-bromobutane and 1-iodobutane

Substance	Hazard	Comment
Bromoethane (ethyl bromide) <i>liquid</i>	  HIGHLY FLAMMABLE HARMFUL  HEALTH HAZARD	<p>DANGER: Highly flammable liquid and vapour. Harmful if swallowed or inhaled. Suspected of causing cancer. Harms public health and the environment by destroying ozone in the upper atmosphere.</p> <p>The flash point of bromoethane is -20°C, ie the liquid gives off sufficient vapour at -20°C to ignite if a flame or spark is applied.</p>
1-bromobutane (<i>n</i> -butyl bromide) 2-bromobutane (<i>sec</i> -butyl bromide) 2-bromo-2-methylpropane (<i>tert</i> -butyl bromide) <i>liquids</i>	  HIGHLY FLAMMABLE HARMFUL  ENVIRON. HAZARD	<p>DANGER: Highly flammable liquid and vapour. Causes skin irritation, serious eye irritation and may cause respiratory irritation. Toxic (or harmful) to aquatic life with long lasting effects.</p> <p>The flash point of 1-bromobutane is 18°C, ie the liquid gives off sufficient vapour at 18°C to ignite if a flame or spark is applied.</p>
Iodoethane (ethyl iodide) 1-iodopropane (<i>n</i> -propyl iodide) 1-iodobutane (<i>n</i> -butyl iodide) <i>liquids</i>	  HEALTH HAZARD TOXIC   FLAMMABLE HARMFUL	<p>DANGER: Toxic if inhaled. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Flammable liquid and vapour. Harmful if swallowed, in contact with skin and if inhaled. Causes skin and serious eye irritation. May cause respiratory irritation.</p> <p>The flash point of 1-iodobutane is 31°C, ie the liquid gives off sufficient vapour at 31°C to ignite if a flame or spark is applied.</p>

Typical control measures to reduce risk

- Wear suitable eye protection.
- Ensure no naked flames or other sources of ignition.
- Check equipment to put out fires, eg damp cloth, bench mat, fire blanket.
- Do not use the highly flammable liquids near naked flames; if heating is necessary, use an electrically-heated water bath or hot water from a kettle.
- Avoid inhaling vapours. Use a fume cupboard to dispense or transfer the liquids. Ensure the laboratory is well ventilated.
- Take particular care to avoid skin contact.
- Use the smallest volume possible.

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?
- 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.
- In the mouth/swallowed Do no more than rinse and spit with drinking water. Do **not** induce vomiting. Call 999/111.
- Spilt on the skin or clothing Remove contaminated clothing. Wash the skin with soap and water. Take contaminated clothing outside for the substance to evaporate.
- Spilt on the floor, bench, etc Open windows if large amounts are spilt. Consider the need to evacuate for large spills. Cover with mineral absorbent (eg cat litter) and scoop into a bucket. Add washing-up liquid and work into an emulsion. Wash to waste with plenty of water.