

Handling hot liquids in beakers

For using Bunsen burners and especially use of different flames, see CLEAPSS *Student Safety Sheet 92*

For heating non-flammable liquids and solids, see CLEAPSS *Student Safety Sheet 93*

For heating flammable liquids and solids, see CLEAPSS *Student Safety Sheet 94*

Heating liquids in beakers

- Wear eye protection.
- Set up the apparatus 30-40 cm back from the edge of the bench.
- Do not fill the beaker more than half full.
- If available, add an anti-bumping granule ('boiling chip') to the liquid before heating. Do **not** add an anti-bumping granule once the liquid is boiling.
- Place a tripod and gauze on a heat resistant mat.
- Place the beaker of liquid on the gauze.
- Place the Bunsen burner on the mat to the side of the tripod and attach the Bunsen burner to the gas.
- Light the Bunsen burner and open the air hole.
- Holding the hose, move the Bunsen burner under the beaker.
- If the air hole needs adjusting, move the Bunsen burner out from under the beaker, make the adjustment and return the Bunsen burner to position. Do **not** place hands underneath hot equipment in case of unexpected breakages or spills.
- Once the liquid begins to boil, close the air hole to half open and turn the gas tap down.
- At the end, it is always better to allow the apparatus to cool down naturally. However, this can take a long time. If time is short use one of the procedures described below.
- The tripod will be very hot – only hold at the bottom of the legs, never the triangle at the top. Take care.



Removing hot beakers

- To remove very hot beakers of liquid from a tripod, the teacher/technician should wear thermal protection gloves and go around the laboratory moving the beakers for each group of students.
- If this is not possible, beakers are best left where they are until cooler.



For less hot beakers, *skilled* students can use the procedure illustrated below

- Switch off the gas.
- Place a commercial 'J-cloth' loosely around the hot beaker.
- Carefully tighten the cloth.
- Lift the beaker onto the heat resistant mat.

