





## Food testing (1)

| Substance   | Hazard  | Comment  |
|---|---|--|
| <b>Food</b>   | <br>BIOHAZARD        | Uncooked samples of food may be contaminated with microbes. (See <i>Student Safety Sheet 1, Microorganisms.</i> )<br>Some people are allergic to some foods, especially peanuts.   |
| <b>Fehlings' solution</b><br>Used to test for reducing sugars.  | <br>CORROSIVE        | See <i>Student Safety Sheets 31 and 40</i> . Solution A contains slightly-acidic copper sulfate solution, but at concentrations which present only a LOW HAZARD. Solution B contains sodium hydroxide solution which is CORROSIVE. As the mixture has to be heated in a test tube, there is a risk of alkali spitting out. |
| <b>Benedict's solution</b><br>Used to test for reducing sugars. | LOW HAZARD  | See <i>Student Safety Sheet 40</i> . Contains slightly-alkaline copper sulfate solution, but at concentrations which present only a LOW HAZARD. Some risk of spitting when heating test tubes.   |
| <b>Ethanol</b><br>Used to test for fats (lipids).               | <br>HIGHLY FLAMMABLE | See <i>Student Safety Sheet 60</i> . If Bunsen burners are being used nearby for other food tests, there is a serious fire risk.   |
| <b>Iodine solution</b><br>Used to test for starch.              | LOW HAZARD  | See <i>Student Safety Sheet 56</i> . Wear eye protection, though the solution in water is dilute and only presents a LOW HAZARD.   |
| <b>Biuret test</b><br>Used to test for proteins.                | <br>IRRITANT        | See <i>Student Safety Sheets 31 and 40</i> . Uses very dilute copper sulfate solution (LOW HAZARD) and sodium hydroxide solution which is IRRITANT (not CORROSIVE) if kept dilute (below 0.5 M).   |

## Typical control measures to reduce risk

- Do not taste foods in laboratories; avoid using products containing peanuts etc if there is a known allergy.
- Wear eye protection and use the smallest possible amounts of chemicals.
- Use Benedict's solution rather than Fehling's solution and heat with a water bath.
- Do **not** use ethanol if there are naked flames nearby.

## 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?**  
Eg, Could chemicals spit out of a test tube?  
Might somebody using a Bunsen burner be unaware that a nearby person was using ethanol?
- **How serious would it be if something did go wrong?**  
Could ethanol catch fire or alkali splash into the eye?
- **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 the eye** Flood the eye with gently-running tap water for 10 minutes. See a doctor.
- **Swallowed** Do no more than wash out the mouth with water. Do **not** induce vomiting. Sips of water may help cool the throat and help keep the airway open. See a doctor.
- **Spilt on skin or clothing** Remove contaminated clothing. Drench the skin with plenty of water. If a large area is affected or blistering occurs, see a doctor.
- **Clothing catches fire** Smother flames on clothing or skin with a fire blanket or other material. Cool any burnt skin with gently-running tap water for 10 minutes.
- **Other ethanol fires** Allow fires in sinks, etc to burn out. Fires at the top of test tubes, beakers, etc should be smothered with a damp cloth or heat-proof mat if this can be done safely.
- **Spilt on floor, bench, etc** For small amounts, use a damp cloth. Rinse well. For larger amounts, cover with mineral absorbent (eg, cat litter) and scoop into a bucket. Neutralise alkali with citric acid. Rinse with water.