







Food testing (2)

Substance	Hazard	Comment
Millon's reagent Used to test for proteins.	  VERY TOXIC / CORROSIVE	It contains a high concentration of a mercury compound and concentrated nitric acid (see <i>Student Safety Sheets 21 and 44</i>). Cole's modification (Millon's reagent A) is somewhat less hazardous because it contains less-concentrated sulfuric acid, but it is still classed as VERY TOXIC and CORROSIVE. It also uses sodium nitrate(III) (nitrite) solution which is HARMFUL. Careful disposal is required. There is a risk of spitting when it is heated in a test tube.
Sakaguchi test Used to test for proteins.	  TOXIC / CORROSIVE   HIGHLY FLAMMABLE / HARMFUL	The test involves mixing three solutions which contain sodium hydroxide solution (CORROSIVE), naphthalen-1-ol (HARMFUL) dissolved in ethanol (HIGHLY FLAMMABLE) and sodium chlorate(I) (hypochlorite) (CORROSIVE). See relevant <i>Student Safety Sheets</i> . Despite these hazards, it is safer to use than either form of Millon's reagent because it does not need to be heated and only a few drops are required. The biuret test is safer still (see <i>Sheet 4</i>).
DCPIP Used to test for Vitamin C.	LOW HAZARD	See <i>Student Safety Sheet 70, Dyes and indicators</i> . (Also known as PIDCP.)
Saliva Used to break down starch.	LOW HAZARD	See <i>Student Safety Sheet 3, Human body fluids and tissues</i> . Negligible risk.
Clinistix Used to test for glucose.	LOW HAZARD	The tip of the stick contains a minute amount of a known carcinogen and should not be touched. The sticks should be stored and disposed of safely. It is normally used for testing urine.
Albustix Used to test for proteins.	LOW HAZARD	This will not detect all proteins. It is normally used for testing urine.

Typical control measures to reduce risk

- Wear eye protection and use the smallest possible amounts of chemicals.
- Use the least-hazardous substance that achieves the required effect.

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 the test tube?*
- *How serious would it be if something did go wrong?*
 Could ethanol (in the Sakaguchi test) catch fire, or acid 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** Push the casualty to the floor, roll the body or 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 the floor, bench, etc** Wipe up small amounts with 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 or acid with sodium carbonate. Rinse with plenty of water.