








## Food testing (2)

See also CLEAPSS Student Safety Sheet 4, Food Testing (1)

Substance	Hazard	Comment
<b>Millon's reagent</b> Used to test for proteins <i>and</i> <b>Cole's modification</b> (Millon's reagent A)	 TOXIC  HEALTH HAZARD  CORROSIVE  ENVIRON.	DANGER: It contains a high concentration of a mercury compound and concentrated nitric acid (see CLEAPSS Student Safety Sheets 21 and 44). <b>Cole's modification</b> is less hazardous because it contains less concentrated sulfuric acid and also uses sodium nitrate(III) (nitrite). DANGER: Fatal if swallowed or on skin contact; causes severe skin burns and eye damage; suspected of causes genetic defects and damaging fertility. Because of toxicity, all residues must be collected for licensed disposal. There is a risk of spitting when it is heated in a test tube.
<b>Sakaguchi test</b> Used to test for proteins	 CORROSIVE  HIGHLY FLAMMABLE  ENVIRONMENT	The test involves mixing three solutions: sodium hydroxide (~1.3 M), naphthalen-1-ol in ethanol (~0.07 M) and sodium chlorate(I) (hypochlorite) (~ 1.5 M). See relevant CLEAPSS Student Safety Sheets. 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 CLEAPSS Student Safety Sheet 4). DANGER: corrosive to skin and eyes, highly flammable
<b>DCPIP</b> Used to test for Vitamin C	LOW HAZARD	See CLEAPSS Student Safety Sheet 70, Dyes and indicators. (Also known as PIDCP.)
<b>Saliva</b> Used to break down starch	LOW HAZARD	See CLEAPSS Student Safety Sheet 3, Human body fluids and tissues. Negligible risk.
<b>Clinistix</b> 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.
<b>Albustix</b> 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 a heated test tube?*
- How serious would it be if something did go wrong?**  
*eg, 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. Consult a medic.
- Swallowed** Do no more than wash out the mouth with drinking water. Do **not** induce vomiting. Consult a medic.
- Spilt on skin or clothing** Remove contaminated clothing. Drench the skin with plenty of water. If a large area is affected or blistering occurs, consult a medic.
- Clothing catches fire** Push casualty to the floor, roll the body or smother flames on clothing or skin with a fire blanket or other material. Cool burnt skin with gently running tap water for 10 minutes. Unless trivial Consult a medic.
- Other ethanol fires** Allow fires in sinks, etc to burn out. Fires at the top of test tubes, beakers etc can be smothered with a damp cloth or heat-resistant 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 acid with sodium carbonate. Rinse with water.