








Food testing (2)

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

Substance	Hazard	Comment
Millon's reagent Used to test for proteins <i>and</i> Cole's modification (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). Cole's modification 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.
Sakaguchi test 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
DCPIP Used to test for Vitamin C	LOW HAZARD	See CLEAPSS Student Safety Sheet 70, Dyes and indicators. (Also known as PIDCP.)
Saliva Used to break down starch	LOW HAZARD	See CLEAPSS Student Safety Sheet 3, Human body fluids and tissues. 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 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.