HANDLING CHEMICALS

Hazardous chemicals

Always take note of the information contained in the safety data sheet and then carry out a risk assessment before handling any dangerous chemical.

Toxic and corrosive materials

Always treat all chemicals as potential poisons and be aware of properties/precautions before use. Avoid direct contact with any chemical and never breathe in solvent vapours. Examples of chemicals giving off vapours permeable to the skin include benzene, aniline, chlorinated compounds; nitrobenzene and phenols.

In cases of skin contact drench with water, then wash with soap and water and seek immediate medical advice. Unpleasant or poisonous compounds should be handled in a fume cupboard. N.B. NEVER mouth pipette any chemical.

Toxic gases

Ensure that all respirators are checked on a regular basis and are in good working order. Before commencing work with toxic gas have appropriate respirators nearby. For cyanides the antidote must be readily available and all laboratory occupants warned of its presence. N.B. liquids contaminated with toxic gas should be purged with nitrogen/air before removal from fume cupboard.

Labelling

All containers must be labelled correctly and securely. Never use unidentified reagents and thoroughly clean old containers.

Explosive materials

Always examine small quantities for the effects of impact and heating before scaling up the experiment. Potential explosives include any azo, diazo, azide, nitro or peroxide compounds and heavy metal salts of organic compounds.

Peroxides

Unsaturated hydrocarbons, aldehydes and ethers are liable to form peroxides in air or in the presence of nitric acid. Solutions should be tested with acidified potassium iodide and the peroxide removed (e.g. with ferrous sulphate solution) before any reaction or process is undertaken.

Mercury

Avoid spillage and vapour build up by working in a tray placed in a fume cupboard. If spilt, collect using any commercially available mercury absorbent or a pipette and remove remainder by applying a paste of equal parts of calcium hydroxide and flowers of sulphur thinned down with water. Allow to dry for 24 hours, remove and send to a waste management company for disposal. Do not dispose of waste in public drains.

Opening bottles

Several compounds often release toxic gases under pressure (hydrochloric acid, bromine, ammonia) when bottles are opened. A face mask, together with any protective clothing assessed to be necessary, should, therefore, be worn and the bottle opened in a fume cupboard.

Flammable solvents

The quantity stored should be kept to an absolute minimum. Store in a fireproof container away from heat. Always extinguish naked flames and display a warning notice when using solvents.

Static electricity

Organic solvents and gases often develop high electrical charges when being dispensed, therefore, all metal drums and gas cylinders, together with the receiver, should be earthed.

Highly reactive substances

Reactions involving, for example, alkali metals and their hydrides should be undertaken behind safety screens with any reagent added in a careful, dropwise manner.

Compressed gases

Always ensure the correct regulator and trap is fitted between glass apparatus and gas cylinder/air bottle. Cylinders should be operated carefully and securely held in stands.