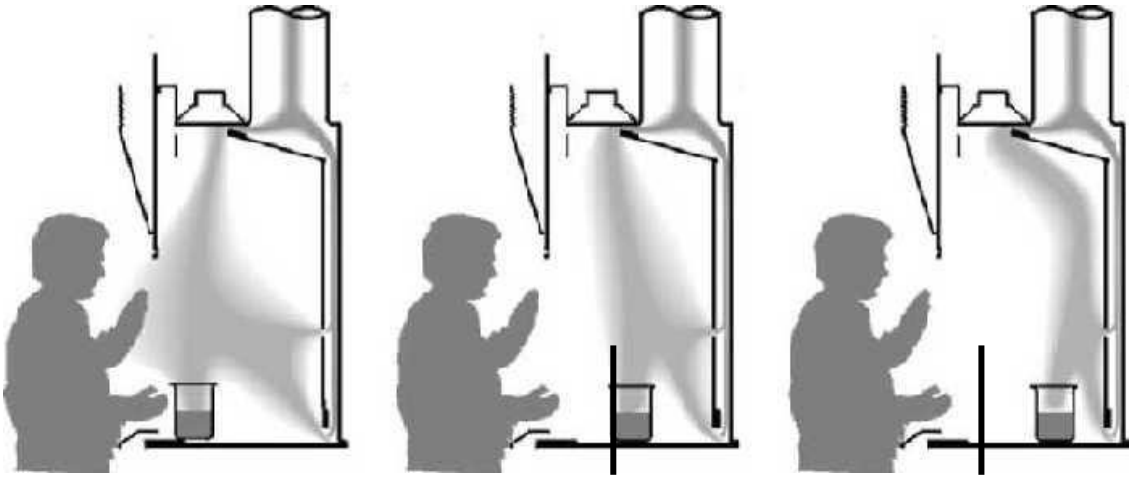
This Information Sheet provides guidance on how to use fume hoods properly to ensure your health and safety when handling chemicals and other dangerous products within them.

A fume hood or fume cupboard is a large piece of laboratory equipment which is designed to limit a person's exposure to hazardous and / or unpleasant fumes by dragging airflow away to prevent it being inhaled / ingested. The pictures below show how sensitive airflow is and how even the position of materials in the fume hood affect the airflow.

There are two main types of units, ducted and re-circulating. However, the principle is the same for all units; air is drawn in from the front of the cabinet by a fan, and either expelled outside the building or made safe through filtration and then fed back into the room.

The vast majority of fume hoods at the University are ducted to the outside.



Bad Placement of Materials

Good Placement of Materials

Best Placement of Materials

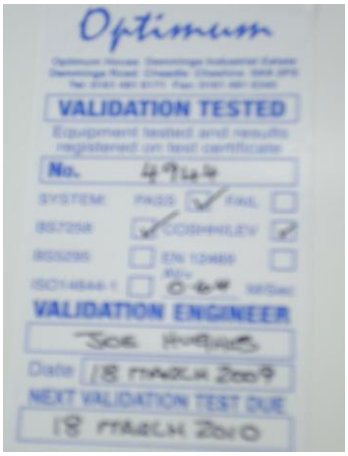
Fume Hood Hazards

If fume hoods are not used and maintained properly the following hazards can result:

- Exposure to hazardous vapours, gases and particulates.
- Dirty fume hoods cause unnecessary exposure as the user cannot see the contamination so is not expecting it to be present.
- Possible fire / explosion if fume hoods are not washed down when required. This can lead to a build-up of chemicals, which can react with each other (exothermic reaction).
- Fumes may leak if the airflow is restricted, as a result of too many items stored in the hood.
- The fume sash left too high, so the fumehood does not work correctly and the user is not protected fully.

Using a Fumehood – Pre-use Checks

- **CHECK** the fume hood has an in-date Test Certificate (see below for example). If it does not have one do not use the fume hood and report it to your Supervisor:



Test Certificate

- Always make sure the fan and the air flow meter or alarm is working **(1 & 2)**.
- **Check for loose or too many items in the hood. These can block vents and stop it working correctly.**
- Shut lab doors, windows as this could affect the airflow through the fume hood.
- Set the sash as low as possible and always below the safe working limit **(3)**.

1

Display

2

Direction of paper movement shows the air is drawn into the Fume Hood

3

Red tab indicates the Safe Working Limit. Try to work with the sash lower if possible

Using a Fumehood – Operator Essentials

- **CHECK** you know how to use the fume hood. If you don't, ask someone!
- Refer to the COSHH Assessment before starting work so you understand any chemical or biological hazards associated with the sample. For example:
    - Hot plates / steam lines could ignite liquids with low flash points.
    - If working with flammable liquids / gases check there is no electrical equipment or other ignition sources inside the fume hood.

- Wear appropriate PPE eg gloves and goggles (the following chart and COSHH Assessment will help), with gloves replaced regularly.
- Remember, different glove thicknesses are needed dependent on what you are doing, eg, thicker gloves or material type required when handling concentrated acids / bases.

	GLOVE MATERIAL					
CHEMICAL GROUP	**Natural Rubber**	**Nitrile Rubber**	**Neoprene™**	**PVC**	**Butyl**	**Viton™**
Water miscible substances, weak acids/alkalis	✓	✓	✓	✓		
Oils		✓				
Chlorinated hydrocarbons						✓
Aromatic solvents						✓
Aliphatic solvents		✓				✓
Strong acids					✓	
Strong alkalis			✓			
PCBs						✓

- **NEVER** place your face inside the fume hood.
- Work with the item at least 15cms into the hood to ensure contaminants get drawn away.
- Move slowly in front of / in and out of the hood as quick movements affect airflow.
- Do not tamper with sashes or use the hood without lowering the sash as it can affect the effectiveness of the fume hood, which is there to protect you.

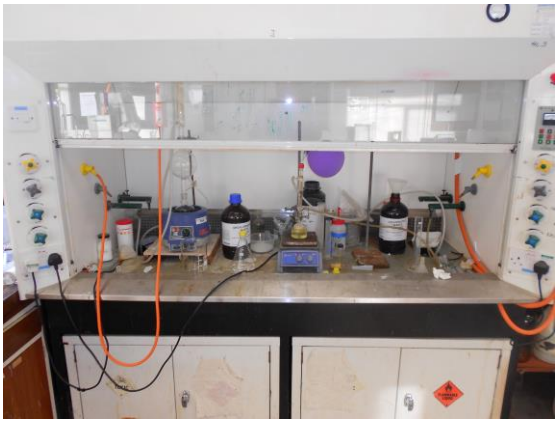
The difference in capture efficiency if the sash is lowered properly

- Wash your hands before eating and drinking after working in a fume hood.
- To allow safe access, keep the area immediately surrounding the fume hood clear.

Housekeeping

Good housekeeping plays a significant part in a fume hood's safe operation and which in turn protects the health and safety of operators. As such, you must:

- Label items left in a fume hood with your name, date, the substance and it's hazards.
- Ensure vents remain clear.
- Clean up spills, disposing of waste in accordance with the COSHH Assessment.



Poor Housekeeping: Trailing electrical leads which could be caught knocking over chemicals

Poor Housekeeping: Unlabelled items, spills not cleaned up, general mess and items too close to the lower vent grill restricting airflow

- **NEVER** Use the fume hood for storage.
- **NEVER** dispose of waste in the fume hood ie allow solvents to evaporate. This breaches environmental legislation (ie illegal) and is extremely hazardous!

FINALLY

- If you think there is something wrong with the fume hood, **STOP** using it, place a sign on it to ensure others do not use it and report it immediately to your Supervisor / Lab Technician.
- All fume hoods at the University are examined regularly by an external contractor, to ensure it is operating correctly to protect you.