Purpose

Chemical fume hoods are one of the most important items of safety equipment present within the laboratory. Chemical fume hoods serve to control the accumulation of toxic, flammable, and offensive vapors by preventing their escape into the laboratory atmosphere. In addition, fume hoods provide physical isolation and containment of chemicals and their reactions and thus serve as a protective barrier (with the sash close) between laboratory personnel and the chemical or chemical process within the hood. The purpose of this SOP is to provide guidance in the proper use and care of a chemical fume hood.

Materials

1. Flame resistant lab coat
2. Gloves

Procedures

1. A chemical fume hood must be used for any chemical procedures that have the potential of creating:
    A. Airborne chemical concentrations that might approach Permissible Exposure Limits (PELs) for an Occupational Safety and Health Administration (OSHA) regulated substance. These substances include carcinogens, mutagens, teratogens, and other toxins.
    B. Flammable/combustible vapors approaching 1/10 the lower explosive limit (LEL). The LEL is the minimum concentration (percent by volume) of the fuel (vapor) in air at which a flame is propagated when an ignition source is present.
    C. Explosion or fire hazards.
    D. Odors that are annoying to personnel within the laboratory or adjacent laboratory/office units.
2. Vertical fume hood sashes can be used in three positions:
    A. Closed
    B. Operating height (or half open)
    C. Set-up position (or fully open)
3. Hoods must be closed when unattended.
4. The sash opening must be positioned no higher than the operating height (or half open) when the hood is being used with chemicals present or when chemical manipulations are performed. Place the sash in front of the face to protect the persons breathing zone near the nose and mouth from chemical contaminants released within the fume hood. When working with hazardous chemicals, the hood sash should always be positioned so that it acts as a protective barrier between laboratory personnel and the chemicals.
5. The set-up position (fully open) is only used to place equipment in the hood when no chemicals are present. Do not fully open the sash when chemicals are present.

6. Sliding horizontal sash panels are used with one panel placed in front of the face and arms reaching around the sides to perform manipulations. DO NOT slide the panels laterally exposing the face to the interior of the hood when chemicals are present.
7. Hood baffles or slot should be positioned properly if available. The top baffle/slot should be opened when chemicals with a vapor density of less than 1 (lighter than air) are used. The bottom baffle/slot (if available) should be opened when chemicals with vapor densities greater than 1 (heavier than air) are used.
8. Chemicals and equipment (apparatus, instruments, etc.) should be placed at least 6 inches (15 cm) from the front edge of the hood.
9. Minimize the number of bottles, beakers, and equipment used and stored inside the hood because these items interfere with the airflow across the work surface of the hood.
10. Chemicals should not be stored in a hood because they will likely become involved if there is an accidental spill, fire, or explosion in the hood, thus creating a more serious problem. Fume hoods are not flammable cabinets and do not offer fire protection for materials stored inside.
11. Sliding horizontal sash windows must not be removed from the hood sash.
12. Laboratory personnel must not extend their head inside the hood when operations are in progress.
13. The hood must not be used for waste disposal (evaporation).
14. Hoods should be monitored daily by the user to ensure that air is moving into the hood. A small piece of thread, yarn, or small piece of Kimwipe® can be taped to the hood sash as a visual indicator that the hood is pulling air. Report any hood that is not working properly to EH&S.
15. Perchloric acid digestions and other procedures using perchloric acid at elevated temperatures MUST NOT be performed in standard chemical fume hoods. Specially designed perchloric acid fume hoods must be utilized for this purpose.

Documentation

Yearly certification records are maintained by the Spokane lab services group.