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Fume Hood Frequently Asked Questions

1. When should you use a fume hood?

A chemical fume hood is required anytime your work involves:

- Volatile chemicals
- Flammable materials
- Carcinogenic materials
- Toxic gasses
- Chemicals with a National Fire Protection Association (NFPA) Health rating of 3 or 4
- Reactive or explosive materials
- Materials which exhibit strong odors both hazardous and non-hazardous

2. Are there any materials that can not be used in a fume hood?

Chemical fume hoods can not be used with:

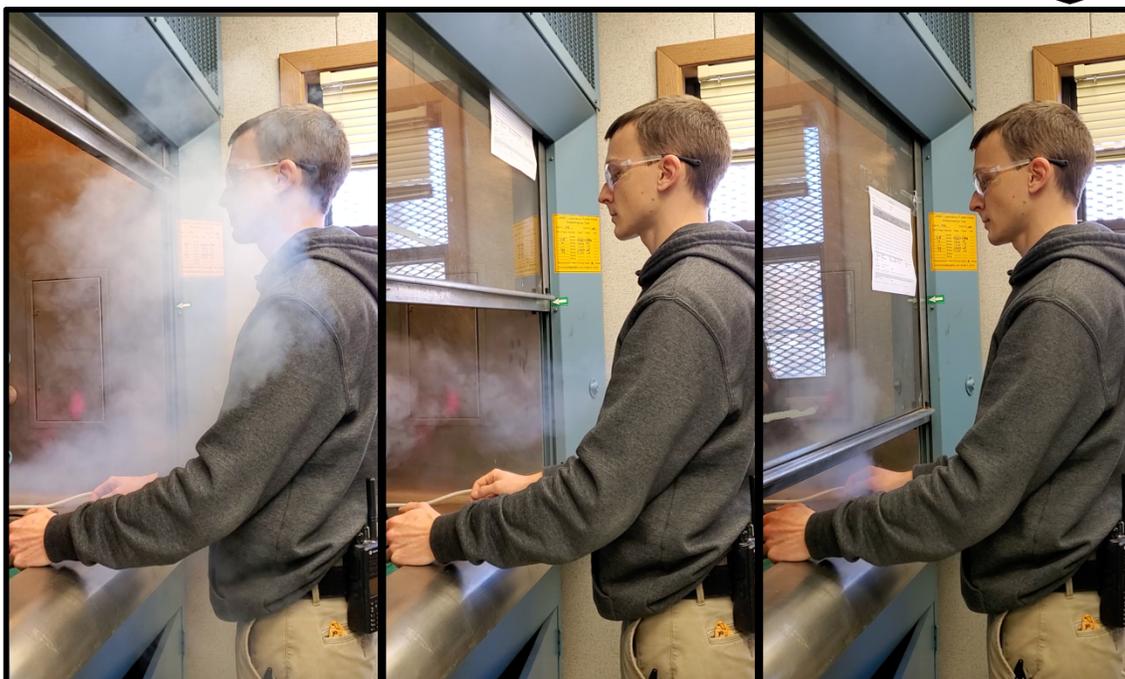
- Perchloric acid due to it causing significant corrosion to the duct system. Specially designed fume hoods and ducting systems are required for the safe use of perchloric acid.
- Biohazardous or potentially biohazardous materials. Chemical fume hoods do not have the capability to mitigate the risks posed by biohazardous materials, only a biosafety cabinet (BSC) may be utilized to process such material.

3. Why do you have to keep the sash closed when not using the hood?

Fume hoods utilize a tremendous amount of energy and closing the sash conserves this energy as well as provides a form of primary containment in the event of a fire or explosion.

4. Why do I need to keep the sash so low when working in the hood?

The volume of air that passes through a fume hood is constant and sash position **does not** control this value. Sash position **does** control the velocity at which the air passes through the fume hood. Raising the sash will reduce airflow velocity while lowering the sash will increase airflow velocity. Airflow velocity is a major factor that determines chemical vapor capture, a higher airflow velocity will contain vapors better than a lower airflow velocity. It is good practice to work with the sash as low as possible, at a minimum the sash should be below the safe sash operating marker.



Sash fully open.

Sash partially lowered.

Sash lowered to proper position.

5. Will the sash protect me from an explosion?

The sash is rated to provide a certain degree of protection from explosions, fires, and chemical sprays. If you are working with reactive substances it is recommended to also utilize a portable blast shield in order to provide a higher degree of protection.

6. What can I store in the hood?

The hood should be used for ongoing experiments and **not** for storage of bulky equipment or excess chemicals. It is imperative not to store anything in the hood that blocks the sash from closing. If large pieces of equipment are required to be stored in the hood it is recommended to raise the equipment off of the working surface by a few inches with blocks to allow for better airflow around the equipment.

7. Why should I work far back from the face of the hood?

Work in the hood should be conducted a minimum of 6 inches away from the face of the hood when possible. Equipment should not contact either side of the hood or the back air slots of the hood.



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8. Will the lights inside the fume hood ignite flammable vapors?

The lights installed in fume hoods are sealed from vapors and are intrinsically safe. All electrical components within the fume hood are designed to work with flammable vapors. Additional experimental specific equipment added to the fume hood such as heaters or other electronics may not be rated to work with flammable vapors. All additional equipment utilized in the fume hood should be thoroughly inspected prior to use.

9. Can I use a ductless fume hood?

Ductless fume hoods are not vented to the outside and utilize filters to capture the hazardous vapors. All air that flows through these stand alone fume hoods will get recycled back into the laboratory space. Over time the filters require replacement and oftentimes these filters fail to contain all vapors, thus posing a significant hazard. Ductless fume hoods should only be utilized after a thorough risk assessment.

10. Is a fume hood the same as a Biosafety Cabinet(BSC)?

A fume hood is designed to capture chemical vapors and exhaust them away from the user. A biosafety cabinet (BSC) is designed to capture infectious agents through a high efficiency particulate air (HEPA) filter and recirculate the filtered air back to the working area within the cabinet and to some extent back into the laboratory (Type A BSCs). A BSC is not able to mitigate the hazards posed from volatile chemicals and should not be utilized for such tasks. Certain BSCs such as type B BSCs may be used with very minute amounts of chemicals only after a thorough risk assessment is conducted.

11. Can I store chemicals under the fume hood?

Chemicals can be stored in the cabinets under the fume hood if the cabinet is vented to the exhaust system. Check to ensure the cabinet is connected to exhaust prior to storing chemicals there, consult the manufacturer or ESH if assistance is needed.

12. How can I maximize my fume hood capture efficiency?

You can maximize the efficiency of your fume hood by eliminating external air currents that could disrupt the normal flow of air past the face of the fume hood. Some tips for maximizing fume hood efficiency are:

- Keeping windows and doors closed
- Turning off fans or other equipment that produce airflow in the direction of the fume hood
- Limiting traffic around the hood
- Working at least 6 inches inside the hood



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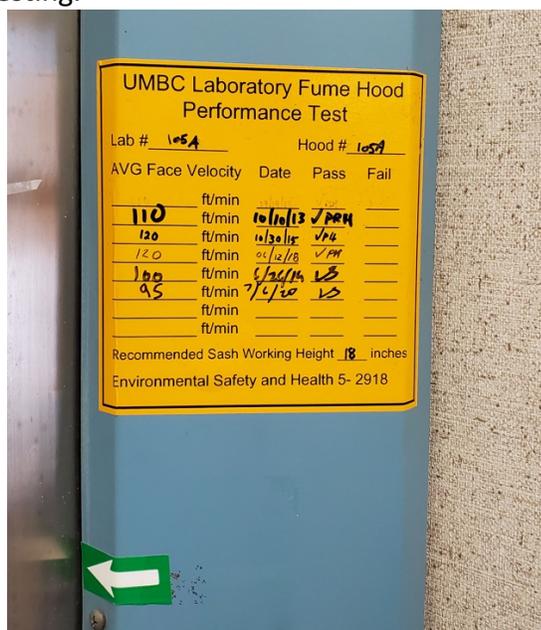
- Limiting the use of bulky items in the hood
- Working with the sash as low as possible

13. Who do I call if my fume hood is not working?

You can contact UMBC Environmental Safety and Health at 5-2918 or by email at esh@umbc.edu to schedule a fume hood test. If a fume hood requires maintenance or repair you should contact Facilities Management Work Control at 5-2550

14. How do I know if a fume hood has been tested?

Fume hoods on campus are tested annually by UMBC ESH. A record of testing can be found on the orange laboratory fume hood performance test stickers. Contact UMBC ESH if a fume hood does not have an orange test sticker or if one year has surpassed since the last date of testing.



Laboratory fume hood performance test sticker (orange) and safe sash operating marker (green)

15. What should I do if the power goes out when I am working in a fume hood?

Find a safe stopping point and ensure no accident will occur after leaving the experiment. Lower the sash to 1-2 inches to allow for the chimney effect (stack effect) to ventilate vapors.



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16. Can I add or remove parts to the fume hood?

Adding or removing anything to a chemical fume hood can severely compromise its protective ability. It is recommended to follow all manufacturer recommendations and as well as contact ESH prior to any modification activities.