Chemical Fume Hoods

Mindfulness Minute: Incorporate safety into your workflow by considering the equipment you use to protect yourself from hazards.

A chemical fume hood is a type of exposure control device/engineering control that protects laboratory workers from hazardous chemical exposures. Knowing the features and limitations of your fume hood is critical to safely using hazardous chemicals in the lab.

Follow this list of dos and don'ts to ensure worker protection:

Do always work with the sash as low as possible, ensuring it is below your face. If the sash slides horizontally, position the sash in front of your face and work around it.

Do keep all items in the fume hood at least 6" away from the sash opening and keep all large pieces of equipment elevated at least 2 inches. Overcrowding the inside of the fume hood can impede airflow.

Do report any suspected malfunctioning fume hoods to EHS by emailing ehs_labsafety@utk.edu.

Don't put your head inside of the fume hood.

Don't use the inside of a fume hood's workspace as permanent chemical storage.

Don't use a fume hood that has an "out of service" tag affixed to it. EHS measures the face velocity of active fume hoods annually. An "out of service" tag means the hood's face velocity was found to be below the acceptable minimum (80 ft/min) when measured.

Don't adjust the baffles or make any other physical modifications to the fume hood without EHS approval. *Helpful Tip: Hold a Kimwipe up to the face of the fume hood for a rudimentary visual verification of airflow.*

Chemical fume hoods and biological safety cabinets are commonly mistaken for one another. While they are both types of exposure control devices, they are designed for different purposes:

Chemical Fume Hood: 	There are many types of chemical fume hoods. Some common properties include: • Protects laboratory workers from inhalation of hazardous chemical vapors. • Does not protect samples from environmental contaminants. • Not equipped with high-efficient particulate air (HEPA) filters. • Exhausts air to the outside of the building. • Usually connected to building HVAC. • In general, work is performed while standing.
Biological Safety Cabinet: 	There are many types of biological safety cabinets. Some common properties include: • Protects laboratory workers from exposure to biological hazards or other particulates. • Most are designed to protect samples from environmental contaminants. • Equipped with HEPA filters that capture small particles and biological agents. HEPA filters DO NOT capture hazardous chemical vapors. • Air is passed through a HEPA filter before being exhausted into the room or environment. • Usually self-contained/not connected to building HVAC. • In general, work is performed while seated.

References:

https://ehs.utk.edu/wp-content/uploads/2018/03/IH-002-Chemical-Fume-Hoods.pdf

https://www.phe.gov/s3/BioriskManagement/biocontainment/Pages/BSC-vs-Fume-Hoods.aspx

https://www.osha.gov/sites/default/files/publications/OSHAquickfacts-lab-safety-chemical-fume-hoods.pdf