

LESSONS TO BE LEARNED

Generated from Actual Incidents by EHSO

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Type of Incident: **Bromine Gas Release**

What Happened: A researcher was performing an experiment that produced a large quantity of bromine gas in a chemical fume hood. Although he ran a hose to the back of the hood the gas went everywhere, including towards the researcher. The fume hood had been inspected two months prior to this and found to be operating with the required face velocity.

Immediate Cause: A fan belt on the motor for the fume hood needed replacing.

Root Causes: Lack of monitoring system to verify that fume hood is functioning at time of use. Since fan belts break without warning, fume hoods must have a real time monitoring system.

Corrective Actions:

1. As per Section 7.2.10 of the Chemical Hygiene Plan (www.uic.edu/depts/envh) an airflow gauge (anemometer) should be installed. These give an easily observed visual display of functional status. In the absence of a gauge, strips of tissue paper (Kimwipes) can be taped on the lower corner of the fume hood sash. Air flow can be visually assessed by noting that the wipe is pulled gently into the hood.
2. Train laboratory personnel in the proper usage of fume hoods, including procedure to determine if there is a problem with air flow.

Fume Hood Use Guidance:

- The arrow on the fume hood is used to document that the hood is capable of performing acceptably when the sash is at this height, in accordance with the ANSI/AIHA standard. The work to be performed in the hood should be evaluated to determine if the user would be better protected with the sash lowered for eye/face protection when these are at risk. Close sash completely when not in use.
- Keep hood storage to an absolute minimum. Keep only items needed for the ongoing operation inside the hood. Keep the back bottom slot clear at all times as it serves as an exhaust port for fumes generated near the work surface. Raise large objects at least 2" off the hood surface to minimize air flow disruption. Maintain operations at least 6" inside the hood face.

