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Science Department Safety Training Notes

Discussion and Notes

Keep a copy of these safety training notes and a signed attendance sheet to verify regular safety training. Regulatory inspectors will usually request proof of safety training. A copy of the sign-up sheet that we suggest using may be found at www.flinnsci.com/media/412875/signup.pdf

Concentrated ammonium hydroxide solution requires special storage considerations. It is severely corrosive, toxic by inhalation, and should be stored, tightly sealed, in a separate corrosives cabinet or compartment isolated from acids. Reaction of ammonia released by degassing from concentrated ammonium hydroxide with hydrogen chloride vapors produces a sticky white powder that will coat all bottles in their vicinity if they are stored together.

Top 12 Ways to Prevent Chemical Spills

Improve safety in your chemical storage rooms and labs by learning how to prevent chemical spills and minimize their severity. The following common-sense guidelines will help you develop safe purchasing procedures, chemical storage plans, and best practices to reduce the risk of chemical spills.

General Guidelines

1. Purchase, store, and dispense chemicals from the smallest size bottles possible. For example, do not order or dispense a chemical from a 2-L bottle if each student only needs 1–2 mL.
2. Purchase, store, and dispense chemicals in unbreakable plastic or PVC-coated glass bottles. Volatile and/or toxic chemicals should never be stored in uncoated glass bottles. Purchase concentrated acids in PVC-coated glass bottles for increased safety.
3. Always use secondary containment, such as a Chem-Saf® bag (heavy-duty plastic bag) or a Saf-Stor® can (unused metal paint can), when storing reactive or highly toxic chemicals. Examples of chemicals that should be purchased and stored in Saf-Stor® cans include sodium, lithium, calcium carbide, sodium peroxide, etc.

Chemical Storage

4. Store flammable liquids in a flammables cabinet and store acids in a dedicated wooden corrosives cabinet. Flammables and corrosives cabinets should have a 2″ high, liquid-tight trough to contain spills and provide secondary containment.
5. Do not store chemicals on the floor, in aisles, stairwells or fume hoods, on laboratory benches, or anywhere a bottle could be knocked over. Always store chemicals at or below eye level.
6. Attach two-inch shelf lips to all chemical storage shelves to prevent bottles from rolling off the shelves. Make your own shelf lips from wood molding or purchase chemical-resistant plastic shelf lips.
7. Check chemical containers periodically for rust, corrosion, and leakage. Some chemicals will absorb moisture or react with air and release heat in the process, causing containers to expand, deteriorate, and possibly break.

Safe Laboratory Practices

8. Downsize lab activities to the smallest scale that is effective for demonstrating a principle or teaching a concept. Use microscale experiments whenever possible.
9. Perform experiments using corrosive, toxic or flammable chemicals in work areas designed to contain accidental releases and prevent exposure. Place secondary containment trays in a fume hood.
10. Dispense chemicals from central locations and place bottles on plastic, chemical-resistant trays or absorbent chemical pads.
11. Always use a spatula and a weighing dish or weighing paper when weighing out chemicals.
12. Recap chemical bottles immediately after use to reduce the risk of spillage if a bottle is accidentally tipped over.

Following these suggestions will help you reduce the number of minor spills and will also greatly diminish the probability of a major spill.

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Chemical Spill Control Video

What spill control materials should you have in each lab where chemicals are used? Please visit the Flinn Laboratory Safety website at http://labsafety.flinnsci.com/Chapter.aspx?ChapterId=124&UnitId=9 to view our free, online "Chemical Spill Control" video. You'll learn how to assess potential laboratory spills and how to assemble a simple and convenient spill control center with everything you need to contain and control laboratory spills.

Thank You for Your Support

Please continue to support our efforts to improve safety in science labs by ordering all of your science supplies and laboratory chemicals from Flinn Scientific.

Next Month's Topic

Autoclave, Bleach or Biohazard Bag?

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