

Time-Sensitive Chemicals

7/26/2005

Prepared by UCSB Environmental Health & Safety

As recently described to the campus lab community, on 7/3 a campus lab had an old lecture bottle of anhydrous hydrogen fluoride undergo a spontaneous violent rupture due to long-term hydrogen buildup. This was a near-miss relative to serious injuries, fire, etc. The problem was the result of leaving a "time-sensitive material" in storage for longer than is recommended. We have subsequently found and removed another old cylinder of the same material.

Since there are other time-sensitive chemicals, this would seem a good time to request all labs to **REVIEW YOUR CHEMICAL STOCKS AND DISPOSE OF MATERIALS THAT ARE POTENTIALLY UNSTABLE**. Note, there is a difference between a time-sensitive chemical and a shock-sensitive chemical (not addressed here).

Chemical waste removal can be initiated by completing the [EH&S on-line](#) form. Waste disposal is free for research labs. If there is concern about the stability of a particular container, do not move it.

Time-sensitive chemicals include:

GASES: Vendors recommend corrosive gases (acids/bases) be **disposed of within 2 years**. This is true whether they suffer from hydrogen buildup or not. Larger cylinders must be returned to the vendor. Examples:

Hydrogen fluoride, anhydrous (see above)
Hydrogen bromide, anhydrous (long-term hydrogen buildup)
Hydrogen cyanide, anhydrous (violent polymerization can occur)
Hydrogen sulfide, anhydrous (anecdotal reports of pressure buildup)
Hydrogen chloride, anhydrous (not reported as unstable, but any corrosive gas can eventually attack the cylinder fittings)

SOLIDS/LIQUIDS: For a good overview of these **hazards** click on:

[doi:10.1016/j.chs.2004.05.014](https://doi.org/10.1016/j.chs.2004.05.014) Note that peroxidizable solvents (e.g. ethers) are the most common material in this category.

For a review of **good management practices** with these materials see the related article: [doi:10.1016/j.chs.2004.05.017](https://doi.org/10.1016/j.chs.2004.05.017)

Note that the most fundamental management tasks are to:

- a. know what you have in stock,
- b. date materials that are time-sensitive,
- c. purge them as needed

Questions on these issues can be addressed to David.Vandenberg@ehs.ucsb.edu However, for particular chemicals, please first consult the [MSDS](#) and container label for the material.