RISK MANAGEMENT & SAFETY

SAFETY ALERT

Time Sensitive Materials

Event: Time Sensitive Materials (TSMs)
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Category: Lab Safety
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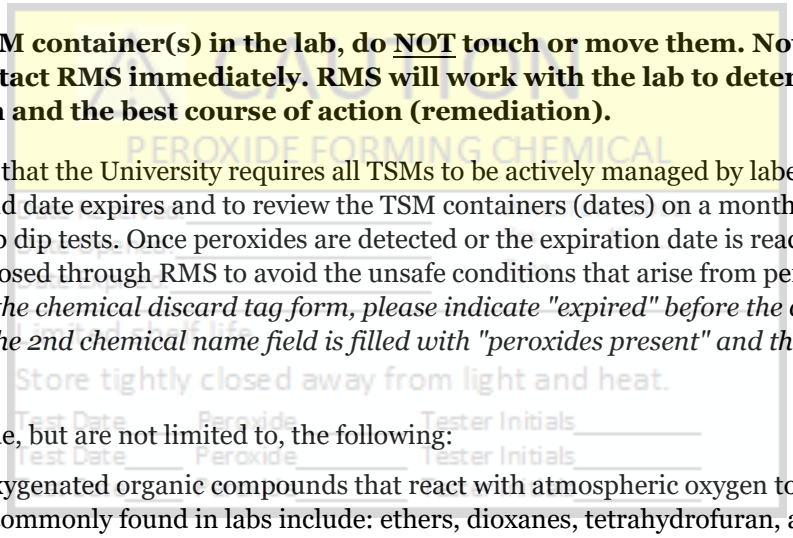
There has been a recent influx of time sensitive materials (TSMs) creating unsafe conditions as a result of mismanagement. A couple involved picric acid that had dehydrated, while others were due to extremely old peroxide formers that had formed explosive peroxides. A high hazards remediation was required by a contracted high hazards response team, which resulted in closure of the impacted lab spaces (building wide in one case) and a cost of just under $10,000 (responsibility of the lab to cover).

If you discover old TSM container(s) in the lab, do NOT touch or move them. Notify all lab members of the hazard and contact RMS immediately. RMS will work with the lab to determine if there is a high hazard condition and the best course of action (remediation).



This is friendly reminder that the University requires all TSMs to be actively managed by labeling with the date received, date opened, and date expires and to review the TSM containers (dates) on a monthly basis, periodically performing peroxide strip dip tests. Once peroxides are detected or the expiration date is reached, the University requires the TSM be disposed through RMS to avoid the unsafe conditions that arise from peroxide containing TSMs. *Note: When completing the chemical discard tag form, please indicate "expired" before the chemical name and add a second constituent so the 2nd chemical name field is filled with "peroxides present" and the percentage field is filled as "0" (zero).*

Examples of TSMs include, but are not limited to, the following:

- Peroxide Formers: Oxygenated organic compounds that react with atmospheric oxygen to form explosive peroxides. Examples commonly found in labs include: ethers, dioxanes, tetrahydrofuran, and benzyl alcohol.
- Polynitrated Aromatics: Compounds which have reactive nitrate groups that can form explosive picrate salts when exposed to certain metals. Examples include: dinitrotoluene, dinitrophenol, hexanitrostilbene, and nitroglycerin.
- Shock-Sensitive Chemicals: Any chemical that could detonate due to heat, friction, and/or shock. Examples include picric acid, hydrazine, ammonium nitrate, and perchloric acid.
- Chloroform: Reacts with air over time to form phosgene – a deadly, odorless gas.
- Anhydrous Hydrofluoric Acid (HF): Easily liquefies and can react with a carbon steel container in the presence of moisture to form hydrogen and iron fluoride. This can cause an increase in pressure inside the cylinder due to the hydrogen gas buildup over time.

The Storage and Disposal of Time Sensitive Materials Procedure has more detailed information, a list of the most commonly used TSMs, and a peroxides former label that can be affixed to any container for documenting its received, opened, and expiration dates and the monthly testing after the expiration date.

Contact your RMS liaison or labsafety@nd.edu with any questions on these or other safety-related topics.

Need additional resources?

For more information regarding laboratory safety, see the Laboratory Safety resources provided on the RMS website (http://riskmanagement.nd.edu/laboratory-safety/)