UNIVERSITY OF CALIFORNIA

Pyrophoric materials – Storage Guide

FAQS:

Why store pyrophoric materials in California Fire Code (CFC) approved storage?

When hazardous materials are stored within California Fire Code (CFC) approved storage, they qualify for an "Approved Storage" bonus. The CFC allows users to double the Maximum Allowable Quantity (MAQ) when certain materials are stored within approved storage cabinets. For example, if a control area has an MAQ of 2 pounds for pyrophoric solids in a control area, this MAQ can increase to 4 pounds total if pyrophoric solids are stored within approved storage cabinets.

What are examples of CFC approved storage for pyrophoric materials?

Pyrophoric Solids: Hazardous Materials storage cabinet (CFC 5003.8.7), flammable liquids storage cabinet (CFC 5704.3.2), listed and approved flammable storage refrigerator or freezer, listed and approved explosion proof refrigerator or freezer

Pyrophoric Liquids: Hazardous Materials storage cabinet (CFC 5003.8.7), flammable liquids storage cabinet (CFC 5704.3.2), listed and approved flammable storage refrigerator or freezer, listed and approved explosion proof refrigerator or freezer

Pyrophoric Gases: Gas cabinet with internal fire sprinkler (CFC 5003.8.6), Exhausted enclosure (fume hood) with internal fire sprinkler (CFC 5003.8.5)

Is it acceptable to store pyrophoric liquids and solids together?

Yes, as long as they are compatible with each other. Check the manufacturer's Safety Data Sheet (SDS), Sections 7 and 10 for storage and compatibility information. Pyrophoric liquids and solids can be stored within the same hazardous materials storage cabinet.

Can pyrophoric solids be stored in flammable liquid storage cabinets?

Yes, approved flammable liquid storage cabinets meet and exceed the requirement for general hazardous materials storage cabinets. Ideally, pyropohoric solids would be separated from other hazardous materials. However, small amounts of pyrophoric solids can be stored in the same cabinet as flammable liquids as long as the materials are compatible with each other.

Can pyrophorics be stored in glove boxes?

Yes, although this would not qualify as CFC approved storage. Glove boxed should ideally be utilized when pyrophoric materials are being handled. Once experiments are completed,

pyrophoric materials should be returned to approved storage cabinets, flammable-safe refrigerators, flammable-safe freezers.

What is the best practice for storing air-sensitive chemicals?

Many pyrophoric liquids are packaged in glass containers with inert gas (e.g.,nitrogen or argon) and an air-impermeable septa. Pyrophoric solids are often packaged under mineral oil. This

prevents the material from reacting with air. Containers from the manufacturer in good condition that are packaged with inert gas or mineral oil can safely be stored inside approved storage cabinets. However, secondary containment, such as an inert-gas filled desiccator, is ideal. Desiccators with containers of pyrophorics can be placed within an approved storage cabinet or a flammable-safe fridge or freezer. While impractical, pyrophoric solids and liquids can also be stored within an approved storage cabinet inside a glove box.

What are the requirements for an approved flammable safe refrigerator or freezer?

Flammable safe refrigerators or freezers are designed to prevent ignition of flammable vapors inside the storage compartments. These refrigerators must be UL listed as Flammable Material Storage Refrigerators (per UL 471) or Freezers or compliant with NFPA 70 requirements for this purpose. Domestic refrigerators or modified (desparked) refrigerators are NOT suitable for the storage of flammable materials.

Do I need an "explosion proof" refrigerator or freezer to store pyrophoric materials?

While this type of fridge or freezer is acceptable for storage of flammable or pyrophoric materials, explosion proof fridges or freezers are not necessary for most research laboratory locations. These are designed to prevent ignition of flammable vapors or gases that may be present outside of the refrigerator or freezer. Explosion proof fridges and freezers are suitable for Hazardous (Classified) Locations designated as Class I (Division 1 or 2) per NFPA 70 (California Electrical Code). These often have additional electrical installation requirements.

Can pyrophoric materials be stored in any building?

No. Per California Fire Code, pyrophoric materials are prohibited from being stored in buildings that are not equipped throughout with automatic fire sprinkler systems. Even if the room or floor where the pyrophoric materials are stored has full sprinkler coverage, pyrophorics are not allowed in the space unless the entire building has sprinkler coverage.