

# Safetygram

NCI-Frederick

ISM-173

Laboratory Personnel

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## Flammable Storage in Refrigerators & Freezers

An incident at this Facility several years ago illustrates the danger of storing flammable liquids in non-explosion safe refrigerators and freezers. In short, when an automatic defrost control malfunctioned on an upright freezer, internal temperatures rose above 105 degrees Celsius and melted plastic shelves, seals, and some containers in the freezer.

Several bottles of ammonium hydroxide were stored in the freezer. The elevated temperature volatilized the solution, filling the room with ammonia vapor at a concentration exceeding the 15-minute occupational exposure limit.

The freezer also contained a one-liter bottle of 95% ethanol. The flash point (the lowest temperature at which a liquid releases enough vapor to form an ignitable mixture) of 95% ethanol is approximately 13 degrees Celsius. If ethanol vapors had contacted an ignition source, such as a spark generated by the light switch on the door, an explosion may have occurred. Such an event could cause a fire, serious injury, or worse. Fortunately, in this case the freezer and its contents were the only casualties.

Examine the refrigerators and freezers in your laboratory to eliminate this potentially hazardous combination. Units with internal electrical components (thermostats, lights, switches, etc.) are not acceptable for storing flammable liquids. Labels for these units are available from Safety, indicating their incompatibility with flammables. Contact EHS at x1451 if you need these labels, or need assistance in safely storing materials in your refrigerator or freezer.

Flammable liquids must not be stored in refrigerators and freezers not specifically designed as "Explosion-Safe" or For Storage of Flammable Materials."