

## Flammable Storage in Refrigerators and Freezers

By Shaun W. Savage

A number of laboratory explosions and/or fires throughout the country have been caused from improperly storing flammable (flashpoint less than 100°F) chemicals in standard household or laboratory refrigerators and freezers. In the event a container breaks or leaks, the combination of fuel (flammable liquid or vapor), oxygen and an ignition source (equipment electrical components such as thermostat, lights, fans and compressors) can result in an explosion. Most often the intensity of this explosion coupled with the location (laboratory) results in personal injury and extensive property damage.

To minimize the risk of explosions and/or fires from storing flammable chemicals in standard household or laboratory refrigerators and freezers personnel should ask themselves these questions

1. Do I have flammable chemicals stored in a refrigerator or freezer?
2. If Yes, Do I need to have a

flammable chemical stored in a refrigerator or freezer? Would use of an ice bath prior to use be sufficient in achieving a certain temperature?

3. If a refrigerator or freezer is needed, is it a Flammable Proof/Resistant or Explosion Proof refrigerator or freezer? If unsure, such equipment will have signs prominently posted on the door.

If there is a need to store flammable chemicals in a refrigerator or freezer, it is imperative that the laboratory purchase a Flammable Proof/Resistant or Explosion Proof refrigerator or freezer. Such equipment provides different levels of protection by eliminating an ignition source. Flammable Proof/Resistant equipment accomplishes this by eliminating potential ignition sources inside of equipment. Explosion Proof equipment provides an additional level of protection by eliminating ignition sources inside and outside of equipment. This level of protection is aimed towards high hazard environments and is usually not necessary for

standard laboratories but is still acceptable.

If a laboratory needs assistance in determining whether a refrigerator or freezer is sufficient for their storage needs please contact Tufts EHS at 617-636-3615. For information on approved vendors and pricing please contact Purchasing at 617-627-3225.

*“Do I need to have a flammable chemical stored in a refrigerator or freezer?”*



**Internal explosion within a standard refrigerator/freezer. Note the force caused both doors to become unHINGED**

## Fire Extinguisher Training

By Wayne G. Springer



The Fire Marshal's office has been providing portable fire extinguisher training to faculty, staff and students throughout the three campuses for the past two years. The *Bullex Intelligent Training System™* is a revolutionary live-fire extinguisher training simulator. The I.T.S.

senses where the trainee aims and sweeps the air pressurized water *SmartExtinguisher™* and automatically varies the flames in response to the trainee's actions. This allows the trainee to learn how to effectively and safely use a portable fire extinguisher on a SMALL fire. The I.T.S. electronic control system responds to the trainees' actions, extinguishing the fire only when the trainee demonstrates the proper technique of slowly sweeping the water spray at the base of the flames. The system

provides a realistic and engaging training experience.

The training sessions are available, weather permitting, April through October and take about 45 minutes for a group of 20.

If you would like to schedule fire extinguisher training for a group of 6-20 people, just email the Fire Marshal @ [wayne.springer@tufts.edu](mailto:wayne.springer@tufts.edu) or call the office at 617-627-3922.