

Lab Fires at the UofR – Safety Advisory

Realize. **Safety** first.



Events:

On two separate occasions, in two different labs, in 2016 fires have occurred in drying ovens. The cause, in both cases, was identified to be the improper use of the drying oven for evaporation of flammable solvents. This resulted in damage to the oven, loss of research samples, and could have resulted in serious injury and greater damage to the lab.

Investigative Findings:

Most standard drying ovens are not “intrinsically safe” or explosion proof and are not to be used with flammable or combustible materials (as per manufacturer’s instructions). In both of these fires, methanol-containing samples were being dried in the oven.

Flammable materials have a low flash point, meaning only a spark is needed to start a fire, so the temperature setting of the oven is irrelevant. Drying ovens will have several parts that can generate a spark, such as a thermostat, fan, switches, etc. Even in the absence of a spark, heating elements are often hot enough to cause vapours to catch fire.

In both of the fires this year, the drying of flammable samples had been performed several times without incident, but one small change in the number/size of the samples resulted in enough flammable vapours being present in the oven to start a fire.

Please note that drying samples in ovens will also result in potentially toxic materials being released into the lab environment via the exhaust ports of the oven. Methanol and/or chloroform were used in these incidents, both of which are toxic and should not be evaporated to the environment, or the breathing space of the lab.

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Recommendations:

These incidents are another reminder of why good risk assessment in our labs is important. Please take the time to participate in the Risk Assessment Initiatives for your Faculty as previously communicated. Both of these fires would have been prevented if robust risk assessment procedures had been in place.

Please follow the specific recommendations stemming from these fires:

- Discontinue all use of hazardous materials in drying ovens (corrosive, flammable, toxic)
- Read and follow all manufacturer's instructions for all lab equipment (contact vendors if you need to obtain copies of user manuals, or contact HSW for help)
- Do not place other combustible materials (paper, cardboard) inside drying ovens, and be mindful of the different types of plastics and their melting points if needing to place plastics in drying ovens (consult HSW for assistance in determining safe temperature ranges for your materials)
- HSW is working on creating Safe Use Guidelines that contain further details on safe use of drying ovens to help you in developing Safe Operating Procedures specific to your lab. This document will be sent to lab managers in the near future, and posted to the HSW website

Please communicate this information to all personnel using hazardous materials or equipment

University
of Regina

HUMAN RESOURCES
Health, Safety & Wellness
Ad Hum Building, Rm 435
Regina, Saskatchewan, Canada S4S 0A2
Phone: 306.585.4163 Fax: 306.585.5232
E-mail: health.safety@uregina.ca
www.uregina.ca/hr/hsw

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Contact information for Advisory:
Sarah Posehn, Safety Advisor
PH. 306-337-3184
Sarah.Posehn@uregina.ca