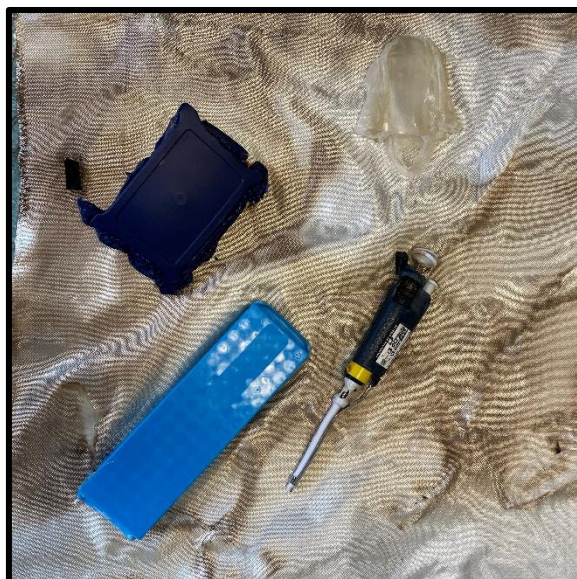


# Safety Alert

## Alcohol Fire in Research Laboratory

June 2022



### Alcohol fire during sterilisation of glass, reusable spreader

A research assistant was plating bacteria onto agar using a glass spreader which was sterilised between samples by dipping the spreader in a beaker of 70% ethanol solution and then using a Bunsen Burner flame to remove the alcohol. During the procedure the beaker of alcohol was accidentally ignited while flaming the glassware, possibly due to a stray droplet of burning liquid. The beaker being used was made of plastic rather than glass and melted quickly causing a burning pool of alcohol to spread across the bench.

Fortunately, the benchtop was clear of combustible materials such as laboratory plastics, papers and chemicals leaving a limited supply of fuel and restricting the spread of the fire. The researcher involved quickly raised the alarm and closed off the gas supply to the burner while the fire was extinguished by other laboratory users with a fire blanket and CO<sub>2</sub> fire extinguisher. The damage to the laboratory was minimised with only superficial damage caused to a nearby hotplate.

### Recommendations

- The use of alcohol solutions and open flames to sterilise metal and glass spreaders is widespread and has been responsible for a number of fires over the past few years. Where practical, this technique should be phased out and replaced with single-use disposable spreaders or alternative techniques (e.g. use of autoclavable beads) to reduce the risk of fires.
- Where there is a technical reason why the use of sterilising flames / alcohol cannot be eliminated, staff and students should be mindful of the risk of fire and take suitable precautions to reduce the risk of a fire starting and spreading. This should include elimination of combustible plastics where possible and ensuring lab users are trained in the appropriate actions to take in the event of a fire.
- The high standard of housekeeping in the laboratory helped to reduce the risk of the fire developing and spreading to include other combustible materials. Where there is a need to use open flames care should be taken to ensure the area is clear of combustible materials such as lab plastics, papers and flammable liquids not used as part of the procedure.
- Make sure that all laboratory users are familiar with both the locations of laboratory service lab shut-off systems, fire alarm call points and emergency equipment (e.g. fire extinguishers) and know how to operate them safely. It is good practice to ensure that fire alarm call points are used as quickly as possible when a fire is identified to begin the evacuation of the building should fire fighting (undertaken by trained personnel) be unsuccessful.