



Memo: Use of open flames in Biosafety Cabinets/Tissue Culture Hoods
From: Janet Peterson, Biosafety Officer

Background:

Early microbiologists had to rely on open flames to ensure sterility while engaging in certain techniques. With the advancement of modern technology, including the introduction of the biosafety cabinet, the use of an open flame is almost always no longer necessary. In fact, the use of an open flame in a biosafety cabinet

- disrupts the air flow, compromising protection of both the worker and the work
- causes excessive heat buildup, may damage HEPA filters and/or melt the adhesive holding the filter together, thus compromising the cabinet's integrity
- presents a potential fire or explosion hazard. Electrical components such as the fan motor, lights and electrical outlets are not designed to operate in flammable atmospheres, where a flash fire could be ignited by a spark.
- inactivates manufacturers warranties on the cabinet: cabinet manufacturers will assume no liability in the event of fire, explosion or worker exposure due to the use of a flammable gas in the cabinet. Additionally, the UL approval will automatically be void.

Recommendations

The University of Maryland strongly discourages the use of gas burners or alcohol flames in biosafety cabinets. The Centers for Disease Control and Prevention (CDC) reports that "open-flames are not required in the near microbe-free environment of a biological safety cabinet" and create "turbulence which disrupts the pattern of air supplied to the work surface" jeopardizing the sterility of the work area.

Solutions

- Remove Bunsen burners and/or replace with alternative technology such as electric incinerators
- Use disposable loops, spreaders, and other instruments
- Instead of flaming, autoclave instruments such as tweezers, scissors and scalpels
- Reduce the amount of flammable chemicals in the cabinet. Use only enough alcohol for one day's work.
- If a flame is absolutely necessary for the work being done, use a pilotless burner or touch-plate microburner to provide a flame on demand



Don't let this be **Your**
Biosafety Cabinet!

Contact DES at x5-3960 with any questions or comments.