

## USE OF OPEN FLAMES IN BIOLOGICAL SAFETY CABINETS

### **“Sustained Open Flames To Be Prohibited In A BSC.”**

*As stipulated by the Canadian Biosafety Standard, 2<sup>nd</sup> Edition.*

#### RISKS

1. Disrupts airflow - compromising the protection of you and your research.
  - *Conflicting air flow patterns result in vortexing and turbulence.*
2. Damages the HEPA filter - compromising the cabinet's integrity.
  - *Destruction of filter and seals, leading to loss of containment.*
3. Causes excessive heat build-up within the cabinet.
  - *Inactivates/degrades components in media.*
  - *Makes an uncomfortable working environment.*
4. Presents a potential fire or explosion risk.
  - *Leaking of flammable gas poses a serious fire risk to the entire lab.*

#### OPTIONS

The use of an open flame in BSC is not allowed at the University of Ottawa. Alternatives for the need for disinfect instruments within a BSC exist:

<p>Use disposable sterile loops, needles and pipettes.</p>	 <p>Disposable sterile loops, needles and pipettes. <small>(Images from Fisher Scientific)</small></p>
<p>Autoclave instruments (loops, needles, pipettes, scissors etc.) before use.</p>	 <p>Centralized autoclave facilities are available at the Faculty of Science and the Faculty of Medicine.</p>

Replace the open flame with a micro-incinerator, or glass bead sterilizer.



Micro-incinerator  
(Image from Fisher Scientific)



Glass bead sterilizer  
(Image from Agnthos)



\*If flame is absolutely necessary, use a touch-plate micro burner for on-demand flame.

(Image from Berkerly Lab)



Bunsen burner  
(Image from Fisher Scientific)

Note: The ORM is available for consultation regarding alternatives to the use of open flames in BSC. Email: [bio.safety@uottawa.ca](mailto:bio.safety@uottawa.ca); telephone: (613) 562-5800 ext. 3153.

## REFERENCES

1. Public Health Agency of Canada. (Mar. 11, 2015). Canadian Biosafety Standard, 2<sup>nd</sup> Edition, from <http://canadianbiosafetystandards.collaboration.gc.ca/cbs-ncb/index-eng.php>
2. Garrett, B. (2011). Open flame use in a Class II Biological Safety Cabinet. Retrieved from <http://www.labconco.com/news/4-reasons-not-to-use-flames-in-bscs>