Bunsen Burner Safety

Overview

Bunsen burners are potential fire hazards due to the open flame and high temperatures produced by the device. As much as possible, replace Bunsen burners with safer alternatives (as shown on page 2). If a Bunsen burner cannot be replaced, follow the guidelines listed below.

In case of a fire, activate the nearest fire alarm pull station, notify all lab personnel, and evacuate the premises following building specific guidelines outlined in the Fire Safety and Emergency Action Plan.

Applicability

This EHS Update applies to all Weill Cornell Medicine (WCM) laboratory faculty, staff, students, and visitors working with Bunsen burners.

Responsibilities

Principal Investigators (PIs) and Laboratory Managers establish and enforce policies and procedures in accordance with this EHS Update and ensure laboratory personnel are in compliance with them.

Laboratory Personnel working with Bunsen burners are responsible for following these guidelines and contacting EHS for assistance and training.

Environmental Health and Safety (EHS) provides assistance and training for Bunsen burner safety as requested, revises this Update as necessary, and advises on alternative options to the use of natural gas-fueled Bunsen burners.

Procedure

- **PLACE** the Bunsen burner away from any overhead shelving, equipment, or light fixtures.
- **REMOVE** all papers, notebooks, flammable & combustible materials, and excess chemicals from the area.
- **TIE BACK** any long hair, dangling jewelry, or loose clothing.
- **TUBING**
  - **USE ONLY** approved and rated tubing types. Examples of rated tubing include:
    - Kantleke gas burner tubing (Fisher Scientific #14-185-5A or #14-185-5B)
    - Science Equipment cloth-covered tubing (Fisher Scientific #S49140)

  - **INSPECT** hose for cracks, holes, pinched points, or any other defect. Ensure that the hose fits securely on the gas valve and the Bunsen burner.
  - **REPLACE** all hoses found to have a defect before using.
- **NOTIFY** others in the laboratory that the burner will be in use.
- **SPARKER/LIGHTER**
  - **UTILIZE** a sparker/lighter with an extended nozzle to ignite the Bunsen burner. **NEVER** use a match to ignite the burner.
  - **HAVE** the sparker/lighter available before turning on gas.
- **ADJUST** the flame by turning the collar to regulate airflow and produce an appropriate flame for the experiment (typically a medium blue flame).
- **DO NOT** leave open flames unattended. **NEVER** leave the laboratory while the burner is on.
- **SHUT OFF** the gas when its use is complete. **ENSURE** that the main gas valve is off before leaving the laboratory.
- **ALLOW** the burner to cool before handling.
- **DO NOT** use Bunsen burners in biological safety cabinets. For additional information, please review the EHS Update on Flammable Gases in Biological Safety Cabinets.

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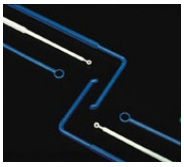
Alternatives

When possible, consider the following alternatives to using a natural gas-fueled Bunsen burner:

- **Electric Bunsen burners** combine the efficiency of a gas burner with the safety and control of an electric heater. Example: VWR product 18344-000.

- **Bact-cinerators** sterilize loops and needles safely and conveniently by preventing infectious spatter and/or cross contamination. Laboratory staff are also safeguarded from an open flame or hazardous gas. Example: VWR product 101412-622.



- **Pre-sterilized inoculating loops, spreaders, and needles**

- **Bead sterilizers** provide a safe, effective, and convenient method for sterilizing instruments and ensuring they are free of pathogens and microbial contaminants without using gases, flames or chemicals. Example: VWR product 75999-332.

- **Pre-autoclaved forceps, scalpels, and other tools** that are in covered, autoclavable, plastic containers or special sterilization sleeves.