

Environmental Health and Safety Update

Bunsen Burner Safety

Overview

Bunsen burners present fire hazards. They produce an open flame and burn at a high temperature. As a result, there is potential for an accident to occur. If possible, replace Bunsen burner use with safer alternatives listed on page 2.

If a Bunsen burner cannot be replaced, it is important that the following guidelines be observed. In case of a fire: activate the nearest fire alarm pull station, notify all lab personnel, and evacuate the premise.

Applicability

This Update applies to all Weill Cornell Medical College (WCMC) laboratory faculty, staff, students, and visitors working with Bunsen burners in WCMC laboratory and buildings.

Responsibilities

Environmental Health and Safety (EHS) will provide assistance and training for Bunsen burner safety as requested, revise this Update as necessary, and provide alternatives to the use of natural gas fueled Bunsen burners.

Principal Investigators and Laboratory Managers will establish and enforce policies and procedures in accord with this Update and make certain that their laboratory personnel are in compliance with them.

Laboratory Personnel working with Bunsen burners are responsible for follow these guidelines and contact Environmental Health and Safety for assistance and training.

Procedure

Bunsen burner safety guidelines:

- **PLACE** the Bunsen burner away from any overhead shelving, equipment, or light fixtures.
- **REMOVE** all papers, notebooks, combustible materials, and excess chemicals from the area.
- **TIE-BACK** any long hair, dangling jewelry, or loose clothing.
- **USE ONLY** approved and rated tubing types. Below are examples of rated tubing:
 - [Kantleke](#) gas burner tubing (Fischer Scientific #14-185-5)
 - [Science Equipment](#) cloth-covered rubber tubing (Fisher Scientific # S49140)
- **INSPECT** hose for cracks, holes, pinched points, or any other defect, and 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.
- **UTILIZE** a sparker/lighter with an extended nozzle to ignite the Bunsen burner. Never use a match to ignite burner.

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- **HAVE** the sparker/lighter available before turning on gas.
- **ADJUST** the flame by turning the collar to regulate air flow and produce an appropriate flame for the experiment (typically a medium blue flame).
- **DO NOT** leave open flames unattended and never leave laboratory while burner is on.
- **SHUT-OFF** the gas when its use is complete.
- **ALLOW** the burner to cool before handling.
- **ENSURE** that the main gas valve is off before leaving the laboratory.
- **DO NOT** use Bunsen burners in biological safety cabinets. For additional information please review the EHS Update on [Flammable Gases in Biological Safety Cabinets](#).

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



- **USE** an Electric Bunsen Burner ([click for example](#)) since it combines the efficiency of a gas burner with the safety and control of an electric heater.



- **USE** a Bact-cinerator ([click for example](#)) to sterilize loops and needles safely and conveniently by preventing infectious spatter and/or cross contamination. It also safeguards the lab staff from an open flame or hazardous gas.



- **USE** pre-sterilized inoculating loops, spreaders, and needles.



- **USE** a Bead Sterilizer to provide a safe, effective, and convenient method for sterilizing your instruments and ensuring they are free of pathogens and microbial contaminants without using gases, flames or chemicals.

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- **USE** pre-autoclaved forceps, scalpels, and other tools that are in covered, autoclavable plastic containers or the special sleeves that are supplied for this use by various companies.