

**Standard Operating Procedure: Bunsen Burner Use**

**Description**

This standard operating procedure outlines the requirements for safely handling and using Bunsen burners. Review this document and supply the information required to make it specific to your laboratory. Per this document, laboratories should use appropriate controls and personal protective equipment when using Bunsen burners. Bunsen burners produce a single open flame by burning a continuous stream of flammable gas used for heating, sterilization, and combustion.

**Responsible Party**

Principal Investigator (Approval)

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Signature	Printed Name	Date
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**Potential Hazards**

Bunsen burners present burn and fire hazards due to the high-temperature open flame produced.

**Engineering Controls**

Non-flame alternatives shall be used where possible.

No Flames are allowed in biological safety cabinets (BSCs), ductless fume hoods, or laminar flow clean benches. Alternatives include infrared (Bacti-Cinerator) and glass bead sterilizers.

**Personal Protective Equipment (PPE)**

- Wear appropriate laboratory attire.
- Wear eye protection (must meet ANSI Z87.1 standard). Safety glasses must be upgraded to chemical safety splash goggles if a splash, spray, or mist hazard exists.
- Wear a flame-resistant lab coat. Do not wear synthetic clothing.
- Use nitrile gloves (Note: nitrile gloves are combustible).

**Work Practice Controls (Bunsen burner safety – best practice):**

- Ensure proper personal protective equipment is worn.
- Tie-back any long hair, dangling jewelry, or loose clothing.
- Remove any overhead shelving within 3 ft above the working surface.
- Remove all papers, notebooks, and chemicals from the area.
- Ensure the Bunsen burner has the correct hose (<https://www.humboldtmg.com/burner-gas-connector.html>). Incorrect hoses include Tygon tubing, black rubber, etc.
- Inspect the hose for cracks, holes, pinched points, or any other defect, and ensure that it fits securely on the gas valve and the Bunsen burner.
- Before Using, replace all hoses found to have a defect.
- Notify others in the laboratory that the burner will be in use.
- To ignite the Bunsen burner, use a flint striker or lighter with an extended nozzle. Never use a match.
- Adjust (if possible) 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.
- Allow the burner to cool before handling.
- Ensure that the main gas valve is off before leaving the laboratory.

**Additional Precautions for Loop and Flame Sterilization**

- Ethanol pretreatment must be thoroughly dried before flame ignition.
- Ethanol used in loop and flame sterilization must be limited to a volume of less than 20 mL.
- Ethanol beaker must be in secondary containment to prevent tipping or spilling.
- The ethanol beaker must be located at least two ft. from an open flame.

**Exposures or Unintended Contact**

**Report all emergencies, injuries, spills, and fires to UDPD by calling 302-831-2222.**

Contact EHS for advice on chemical exposure symptoms or assistance in an exposure assessment. Please report all work-related accidents, injuries, illnesses, or exposures to EHS at 302-831-8475 within 24 hours and complete and submit the First Report Form at <https://udapps.nss.udel.edu/casforms/ehs/firstreport/index.jsp>.

Complete the EHS Near Miss form and submit it to EHS as necessary: <http://www.udel.edu/ehs/forms/downloads/nearmiss.pdf>.

**Release/Leak Procedure**

- When a gas leak occurs, **personal safety should always come first**.
- Alert and clear everyone immediately where the gas leak occurred.
- Open outside windows, if possible & safe to do so. Avoid breathing gas.
- Contact DEHS at 302-831-8475 for release assistance.

**Training of personnel**

All personnel are required to complete the **Lab Safety Training** through SciShield, including but not limited to:

**Fire Safety Training** (required): <https://delaware.scishield.com/rafttraining/course/253>

**High-hazard Training** (required): <https://delaware.scishield.com/rafttraining/course/544>

All personnel shall read and fully adhere to this SOP when working with Bunsen burners.

**Certification**

I have read and understood the above SOP. If I plan to modify this procedure, I agree to contact my supervisor or lab manager.

User's Name (Reviewer)	Signature	Date Trained

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