



Safety Note

UNIVERSITY OF CALIFORNIA
AGRICULTURE AND NATURAL RESOURCES
ENVIRONMENTAL HEALTH AND SAFETY



Safety Note #122

LABORATORY BURNER SAFETY



Alcohol Laboratory Burner
Photograph Courtesy of
Hopland REC

Laboratory burners are used for many types of heating processes and pose an injury risk due to the open flame they produce. Open flames are dangerous because they can burn skin and hair, create noxious chemical fumes, serve as an ignition source for other flammable materials, and heat non-flammable surfaces to high temperatures. Injuries related to the use of laboratory burners include burns from flames, touching heated surfaces, and splashing heated liquids onto the body, skin cuts and eye trauma from exploding glass, and inhalation of noxious chemical fumes. Laboratory burners include Bunsen burners that have a barrel that is fueled by natural gas or alcohol burners that use a wick and are fueled by a flammable liquid such as alcohol or kerosene.

Laboratory Burner Safety Precautions

- Before using, always inspect the laboratory burner for damage or disrepair, including the gas feed tubing or wick, connections to the burner, and wall outlet valve, needle valve, and barrel.
- If a laboratory burner fails the pre-use inspection, notify your supervisor and remove the laboratory burner from service by attaching a red tag that states "DO NOT USE." Complete red tag with appropriate information.
- Prior to starting, examine the laboratory burner work area and vicinity to determine whether flammable materials, gases, or vapors are present or may develop. If it appears they are present or may develop, do not light the laboratory burner until these hazards have been contained, eliminated, or removed to a safe location.
- Know where the laboratory fire extinguisher and wash station are located and how to use them.
- The procedure for lighting a gas Bunsen burner is as follows: 1). Verify the needle valve and barrel are closed; 2). Open the wall outlet valve; 3). Open the barrel and needle valve $\frac{1}{2}$ turn; 4). Light the flame using a striker or match; and 5). Adjust the flame for intensity using the needle valve and barrel. Close wall outlet valve first to shut off the gas Bunsen burner. Then close the needle valve and barrel.
- If the flame of a gas Bunsen burner goes out or begins to sputter, turn the wall outlet valve off immediately.
- The procedure for lighting an alcohol burner is to raise the wick and light it using a match. Lower the wick to shut off the alcohol burner.
- Allow used matches to cool before disposing of them in the trash.
- Never leave a lit laboratory burner unattended.
- Keep your hair away and hands away from the open flame. Tie long hair back or secure under a cap. Always wear eye protection when using a laboratory burner.
- Remember that objects heated by a laboratory burner retain their heat for a long time and while hot, remain a burn hazard. Use tongs or heat-resistant gloves to pick up heated clamps, tripods, rings, screens, glassware, or ceramics.
- Place hot objects on trivets or hot pads.
- Never heat a closed container over a laboratory burner.
- Carefully monitor liquids as they are heated. Either reduce the heat or remove liquids from the laboratory burner heat source once they are boiling.
- Always use a laboratory burner in a fume hood if noxious chemical fumes will be produced during the heating process.



Bunsen Burner