

Open Flame Operation in 331

Reviewed By:	Building/Area: 331/300	Date: 9-24-1998
JSA #:	Prepared By: RM Thomas	
Safety Equipment Required	Tools and Equipment Required	Job Preparation
<ol style="list-style-type: none"> 1. Building fire extinguisher, sprinklers, alarms, safety showers all must be in service. 2. Jar cover for flammable liquid jar 	Striker, Bunsen burner with reinforced tubing and clamps, or propane torch, ethanol in jar with cover.	Clear area of combustible/flammable materials. Someone must always be present when open flames are present. Staff must be trained in "Fire Extinguisher Awareness (SAF-FP-001)". Staff must know the 331 Building Emergency Procedure for fire response. A jar with a cover must be used for flammable liquids.
Hazardous Materials		Related Requirements
Flammable gases (methane, propane), flammable liquids (ethanol)		Radiation Work Procedure No
		Nuclear Safety Specification No
Job Step	Hazard	Hazard Control and Protective Equipment
Open Flames		
1. Clean area surrounding propane torch or Bunsen burner before lighting.	Starting combustible/flammable material on fire	Do a quick check in the general vicinity of the torch/burner including around, above, and below before you light the torch/burner. Remove any combustible material (e.g., paper, towels, etc.)
2. Position torch in a holder or handhold, position Bunsen burner with firm footing before lighting. Position flame away from combustible material.	Torch/burner can tip over and spread flame	Unless torch/burner is being held in the hand, always have it in the holder at least 12" from walls of hood or room.
3. Gently start the gas flow and light the torch/burner flame with a striker.	Rapid and large flame from too rapid a gas flow	Turn knob on torch or gas valve gently until you can just hear gas flow and light torch/burner.
4. Adjust the flame size	Too large a flame	You need a flame just large enough to sterilize tubes and flask openings, loops, and break bubbles in agar plates.
5. Use care when picking up torch/burner in the hand to break bubbles in agar plates.	Dropping torch/burner, burning petri dishes	Adjust flame to small size, pick up torch/burner with a firm grip, and wave torch/burner quickly over bubbles in agar to just melt bubbles. Do not hold flame over the petri dish for more than a few seconds.

6. Return torch to stand or burner to firm footing when done holding it in the hand.	Dripping torch/burner, burning	Hold torch/burner with firm handhold.
7. Turn off torch/burner and gas line if applicable	Fire	Make sure torch/burner is off. Also make sure the gas valve is turned off.
Open Flames with Flammable Liquids		
1. Clean area surrounding propane torch or Bunsen burner before lighting	Starting combustible/flammable material on fire.	Do a quick check in the general vicinity of the torch including around, above, and below, before you light the torch/burner. Remove any combustible material (e.g., paper, towels, etc.).
2. Position torch in a holder or handhold, position Bunsen burner with firm footing before lighting. Position flame away from combustible material.	Torch/burner can tip over and spread flame	Unless torch/burner is being held in the hand, always have it in the holder at least 12" from walls of hood or room.
3. Position the flammable liquid away from torch/burner.	Flammable liquid catching on fire	Place the torch/burner and jar containing ethanol on either side of the operator. The maximum amount of ethanol allowed is 100ml in a jar with a cover.
4. Gently start the gas flow and light the torch/burner flame with a striker.	Rapid and large flame from too rapid a gas flow	Turn knob on torch or gas valve gently until you can just hear gas flow and light torch/burner.
5. Adjust the flame size.	Too large a flame	You need a flame just large enough to sterilize tubes and flask openings, loops, and break bubbles in agar plates.
6. Use care when picking up implement dipped in ethanol and starting implement on fire.	Dropping of burning ethanol, spilling of ethanol	Dip item in ethanol and let excess drip off into jar. Hold ethanol dipped end down and light ethanol on fire. Keep burning item away from ethanol. If ethanol catches on fire, smother fire by putting cover on jar.
7. Cover ethanol jar when jobs complete.	Spilling of ethanol	If ethanol catches on fire, smother fire by putting cover on jar.
8. Turn off torch and gas line if applicable.	Fire	Make sure torch/burner is off. Also make sure gas valve is turned off.