



UNC CHARLOTTE

Department of Engineering Technology

LABORATORY SAFETY ANALYSIS

USING A SULFUR MORTAR CAPPING SYSTEM





Location: Smith 134

Required Training: Sulfur mortar capping systems are designed and intended for use by properly trained and experienced operators. If you are not familiar with the proper and safe operation of this type of apparatus, do not use until proper training and knowledge have been obtained.

Required Personal

Protective Equipment (PPE): Safety glasses, dusk mask, leather gloves needed for handling hot sulfur mortar materials, face shield in addition to safety glasses, closed toed shoes

Reference Materials: Manufacturer's safety rules and operating instructions

PHOTOS	TASK	HAZARDS	CONTROLS
	Remove all jewelry. Wrap long hair in net. Ensure clothing is sturdy and loose. Snug clothing, neckties, rings, bracelets, or other jewelry may get caught in the capping materials.	Caught in sulfur mortar	<ul style="list-style-type: none"> Do not wear any jewelry that may get caught in the sulfur mortar or capping equipment. Do wear gloves when capping test specimens Snug clothing may cause burns to skin if it comes in direct contact with hot sulfur mortar materials.
	Wear clear safety glasses with side shields and if necessary use a face shield. Always wear leather gloves.	Hot asphalt, burns, splatter	<ul style="list-style-type: none"> Students are required to provide their own safety glasses. See laboratory instructor or laboratory manager if you do not have safety glasses before proceeding to use equipment.
	Inspect safety glasses for cracks, scratches or other damage. Ensure the ANSI standard Z87.1 is stamped into the side of glasses. If necessary inspect dust mask or face mask.	Flying debris and dust particles	<ul style="list-style-type: none"> If defects are found report this to your laboratory instructor before using.
	Put on all necessary PPE	Hot asphalt, burns, splatter	<ul style="list-style-type: none"> Always wear safety glasses. Always wear closed toed shoes to prevent injuries to ones feet. Always wear leather gloves when handling hot sulfur mortar materials and related hot hand tools.

	Visually inspect the electrical power cord.	Electrical shock	<ul style="list-style-type: none"> If the electrical cord is damaged or worn the electrical cord should be unplugged and tagged "Out of Service-Do Not Use". This should be reported to the laboratory manager immediately. Electrical cord replacement should only be conducted by a factory authorized technician.
	Ensure the electrical cord is connected to electrical outlet.	Electrical shock	<ul style="list-style-type: none"> Caution: Always remember to disconnect the electrical power cord before smelting pot.
	Inspect work area, walk around fume hood and capping area looking for debris and ensure adequate lighting.	Slips, trips & falls	<ul style="list-style-type: none"> Always conduct all capping operations under the fume hood in Smith 134. (Remember to make sure the fume hood is turned on and operating properly before conducting any capping of test specimens.) Remove any debris that could possible cause a injury. Keep work space around capping equipment free from old asphalt, mold release oil or grease.
	Turn the smelting pot on by switching the button to the "ON" position and set to desired operating temperature.	Shock and burn injury	<ul style="list-style-type: none"> Allow the sulfur mortar to reach desired temperature before capping test specimens. Never leave a smelting pot unattended since the pot could over heat and boil the mortar.
	Prepare capping molds and tools	Burn injury, splatter	<ul style="list-style-type: none"> Use care when placing molds and capping tools in fume hood. Always wear PPE when working with hot materials.
	Begin capping process of test specimens	Burn injury, splatter	<ul style="list-style-type: none"> Ensure that the fume hood window is in proper position. Always wear PPE when working with hot materials. Use care when pouring hot sulfur mortar into capping molds. (Remember hot sulfur mortar could exceed temperatures of 375 deg. F). While working with hot sulfur mortar, devote your individual attention to the task at hand. Use the proper lifting techniques, ask for assistance or obtain a mechanical lifting device for large or heavy materials.
	Turn off all smelting pot, clean all tools	Burn injury, splatter	<ul style="list-style-type: none"> Allow the sulfur mortar to cool naturally before attempting to move smelting pot.
	Clean work area and return all PPE to clean, dry storage area.	Injury	<ul style="list-style-type: none"> To ensure adequate housekeeping measures to prevent accidents. Properly clean all tools of sulfur mortar residue.

For more information about this LSA, contact the *Department of Engineering Technology* at UNC Charlotte (704) 687-2305
 Please visit our website at: <http://www.et.uncc.edu>

The development of Laboratory Safety Analyses is a very effective means of helping reduce incidents, accidents, and injuries in the workplace. It is an excellent tool to use for training purposes and can also be used to investigate "near misses" and accidents.