UNC CHARLOTTE
Department of Engineering Technology

LABORATORY SAFETY ANALYSIS

OPERATING THE BLUE M HEAT TREAT FURNACE

Location: Smith 125C

Required Training: The Blue M Heat Treat Furnace is designed and intended for use by properly trained and experienced operators. If you are not familiar with the proper and safe operation of this device, do not use until proper training and knowledge have been obtained.

Required Personal Protective Equipment (PPE): Safety glasses, leather gloves, closed toed shoes, tongs

Reference Materials: Manufacturer's safety rules and operating instructions

PHOTOS	TASK	HAZARDS	CONTROLS
	Wear clear safety glasses with side shields.	Radiant heat	• 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.	Radiant heat	• If defects are found report this to your lab instructor before using.
	Put on PPE	Radiant heat burns.	• Always wear safety glasses. • Wear leather gloves whenever putting samples into or removing samples from the furnace. • Always wear closed toed shoes to avoid burns from dropped samples. • Handle samples only with long handled tongs.
	Inspect work area, walk around apparatus looking for debris and ensure proper lighting.	Slips, trips & falls, struck by	• Keep the work area around the furnace free from scraps, dust, oil and grease.
	Visually inspect the electrical connection.	Electrical shock	• If the electrical connection is damaged or worn the main cut-off should be

			switched off and tagged "Out of Service-Do Not Use". • This should be reported to the laboratory manager immediately.
	Turn on main power and furnace control panel	Electrical shock, heat hazard	• Ensure that indicator lights and set point display are functioning properly. • Check furnace cavity and make sure it is empty as furnace heats up. • Do not set temperature beyond the capabilities of the furnace or material to be heated. • Always wear safety glasses and leather gloves when opening furnace door.
	Inserting and heating samples	Heat hazards	• Always hold and insert sample into the furnace using tongs. • Minimize the time the door is open to avoid excessive heat radiation to arms, face and eyes. • Ensure that the door closes and seals securely once sample is inserted. • Exterior surfaces of furnace can also be hot while under operation.
	Removing samples	Heat hazards, burns	• Observe all PPE requirements when removing samples from furnace (safety glasses, gloves, closed toed shoes, tongs). • Use tongs with a firm grasp to remove sample from furnace. Samples can easily exceed 1000+ degrees F. • Do not place sample on any combustible surface.
	Turn furnace off	Heat hazards	• When all testing is completed, turn furnace controls and main connector box to the "off" position. • Allow furnace to cool naturally with door closed.
	Clean work area and return all PPE to a clean, dry storage area.	Injury	• Ensure adequate housekeeping measures to prevent accidents. • Remove any samples to a safe storage area.

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.