



UNC CHARLOTTE

Department of Engineering Technology

LABORATORY SAFETY ANALYSIS

OPERATING A MICROWAVE OVEN


Location: Smith 131 and Smith 133

Required Training: A microwave oven 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	<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.	Radiant heat	<ul style="list-style-type: none"> If defects are found report this to your lab instructor before using.
	Put on PPE	Radiant heat burns.	<ul style="list-style-type: none"> Always wear safety glasses. Wear leather gloves whenever putting samples into or removing samples from the oven. Always wear closed toed shoes to avoid burns from dropped samples. Handle small samples (water content cups) only with long handled tongs.
	Inspect work area, walk around apparatus looking for debris and ensure proper lighting.	Slips, trips & falls, struck by	<ul style="list-style-type: none"> Keep the work area around the oven free from scraps, dust, oil and grease.
	Visually inspect the electrical connection.	Electrical shock	<ul style="list-style-type: none"> If the electrical connection is damaged or worn the main power 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 oven control panel	Electrical shock, heat hazard	<ul style="list-style-type: none"> • Ensure that indicator lights and set point display are functioning properly. • Check oven cavity and make sure it is empty before using. • Do not select time/temperature settings beyond the capabilities of the oven or material to be heated. • Always wear safety glasses and leather gloves when opening oven door.
	Inserting and heating samples	Heat hazards, fire, explosion	<ul style="list-style-type: none"> • Always use microwave safe containers in oven. Metallic contains will cause electrical sparks and fire. • Always hold and insert sample into the oven using tongs or gloved hands. • Always place a cup of water in the oven to act as a heat sink. Maintain proper water level at all time. • Ensure that the door closes and seals securely once sample is inserted. • Maintain complete supervision of oven when in operation. Never level oven unattended. • Exterior surfaces of oven can also be hot while under operation.
	Removing samples	Heat hazards, burns	<ul style="list-style-type: none"> • Observe all PPE requirements when removing samples from oven (safety glasses, gloves, closed toed shoes, tongs). • Use tongs with a firm grasp to remove small samples from oven. Samples can easily exceed 300 degrees F. • Do not place sample on any combustible surface.
	Turn oven off	Heat hazards	<ul style="list-style-type: none"> • When all testing is completed, turn oven controls and main power switch to the "off" position. • Allow oven to cool naturally with door closed.
	Clean work area and return all PPE to a clean, dry storage area.	Injury	<ul style="list-style-type: none"> • 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.