



UNC CHARLOTTE

Department of Engineering Technology

# LABORATORY SAFETY ANALYSIS

## OPERATING A MARSHALL COMPACTOR


Location: Smith 134

Required Training: Marshall Compactors 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, closed toed shoes, leather gloves needed for handling hot asphalt materials, face shield in addition to safety glasses for additional protection from splattering of hot asphalt.

Reference Materials: Manufacturer’s safety rules and operating instructions. LSA CIET001 “Operating a Conventional Oven”, LSA CIET008 “Operating a Hot Water Bath” and LSA CIET014 “Operating a Sample Extruder”

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 hot asphalt mixture.	Caught in hot asphalt	<ul style="list-style-type: none"> <li>Do not wear any jewelry that may get caught in the hot asphalt mix.</li> <li>Do wear gloves when handling hot asphalt mixture and related hot tools.</li> <li>Snug clothing may cause burns to skin if it comes in direct contact with hot asphalt mixture.</li> </ul>
	Wear clear safety glasses with side shields and if necessary use a face shield. <b>Always wear leather gloves.</b>	Hot asphalt, burns, splatter	<ul style="list-style-type: none"> <li>Students are required to provide their own safety glasses.</li> <li>See laboratory instructor or laboratory manager if you do not have safety glasses before proceeding to use equipment.</li> </ul>
	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.	Hot asphalt, burns, splatter	<ul style="list-style-type: none"> <li>If defects are found report this to your laboratory instructor before using.</li> </ul>
	Put on all necessary PPE	Hot asphalt, burns, splatter, falling objects	<ul style="list-style-type: none"> <li>Always wear safety glasses.</li> <li>Always wear closed toed shoes to prevent injuries to ones feet.</li> <li><b>Always wear leather gloves when handling hot asphalt mixture and related hot hand tools.</b></li> </ul>

	Inspect work area, walk around compaction stand looking for debris and ensure adequate work space and lighting.	Slips, trips & falls	<ul style="list-style-type: none"> <li>Remove any debris that could possibly cause an injury. Keep work space around compactor free from old asphalt, mold release oil or grease.</li> </ul>
	Prepare molds and tools	Burn injury, splatter	<ul style="list-style-type: none"> <li>Use care when placing molds and compaction tools in hot water baths over ovens.</li> <li>Always wear PPE when working with hot materials.</li> <li>Follow LSA CIET001 "Operating a Conventional Oven" and CIET008 "Operating a Hot water Bath."</li> </ul>
	Preparation of hot asphalt specimen	Burn injury, splatter	<ul style="list-style-type: none"> <li>Always wear PPE when working with hot materials.</li> <li>Use care when removing hot asphalt sample containers from oven. (Remember containers and asphalt could exceed temperatures of 375 deg. F).</li> <li>While working with hot asphalt, devote your individual attention to the task at hand of measuring out the required amount of asphalt.</li> </ul>
	Compaction of hot asphalt specimen	Burn injury, splatter, pinch, dropped objects	<ul style="list-style-type: none"> <li>Always wear PPE when working with hot materials.</li> <li>Use care when placing and compacting hot asphalt within the mold using hot hand tools. (Remember containers and asphalt could exceed temperatures of 375 deg. F).</li> <li>While working with hot asphalt, devote your individual attention to the task at hand of forming and compacting asphalt.</li> <li>Avoid awkward work positions while handling the compaction hammer; they could result in slips which may cause contact with the hot asphalt.</li> </ul>
	Extrusion of hot asphalt specimen	Burn injury, splatter, pinch, dropped objects	<ul style="list-style-type: none"> <li>Always wear PPE when working with hot materials.</li> <li>Use care when extruding hot asphalt from within the mold. (Remember containers and asphalt could exceed temperatures of 375 deg. F).</li> <li>Follow LSA CIET014 "Operating a Sample Extruder."</li> </ul>
	Turn off all water baths and ovens, clean all tools	Burn injury, splatter	<ul style="list-style-type: none"> <li>Follow LSA CIET001 and CIET008 for proper shut down of ovens and water baths.</li> </ul>
	Clean work area and return all PPE to clean, dry storage area.	Injury	<ul style="list-style-type: none"> <li>To ensure adequate housekeeping measures to prevent accidents. Properly clean all tools of asphalt residue.</li> </ul>

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.***