UNC CHARLOTTE
Department of Engineering Technology

# LABORATORY SAFETY ANALYSIS

## OPERATING A MIG WELDER

Location: Smith 128A/B
Required Training: MIG welders are designed and intended for use by properly trained and experienced operators. If you are not familiar with the proper and safe operation of a MIG welder, do not use until proper training and knowledge have been obtained.
Required Personal Protective Equipment (PPE): Leather welding jacket, leather gloves, approved welding helmet, full length pants, closed toed shoes
Reference Materials: See manufacturer's safety rules and operating instructions. For compressed gases see UNCC-ET Laboratory Health and Safety Plan (LHASP)

| PHOTOS | TASK | HAZARDS | CONTROLS |
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|  | Visually inspect work area | Slips, trips & falls | • Insure that all wires, cables, hoses are routed correctly to avoid entanglement<br>• Check that the work area is free of debris, oil or grease on floor |
| | | Tip-over's | • Check that gas tank is stable and secured to wall or cart. |
| | | Electrical hazards | • Locate the on/off switch as well as the main power supply cut-off |
| | Inspect welding helmet | Light radiation | • Check that the lens is firmly attached to the helmet and of the proper type. |
| | Put on all necessary PPE | Struck by, fire, injury | • Always wear welding jacket, gloves, and approved welding helmet. |
| | Turn on exhaust fan | Smoke, fumes | • Ensure that exhaust fan is turned on prior to welding. |
| | Open gas valve | Compressed gas | • Though the gas is non-flammable, it is under high pressure.<br>• Open the valve CCW very slowly & turn your head away while opening.<br>• Tank replacement should only be done by or under the direct supervision of the laboratory instructor or laboratory manager.<br>• Full or empty tanks not is use must have safety cap screwed on. |
| | Check electrical connections | Electrical hazards | • Check that electrical connections are secure and that cords/connectors are |

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| | | | In good condition, Report any problems to laboratory instructor or laboratory manager. |
| | Check material to be welded. | Electrical hazard, Fume hazard | • Verify that ground clamp is firmly attached to bench or material and that material is held securely with clamps or fixtures.<br>• Remove all paint or plating from surfaces to be welded. |
| | Secure work area | Light radiation | • Insure that cubicle panels are closed to protect those outside of the area before striking an arc.<br>• Insure that anyone else within the work area has on proper PPE and warn them before striking an arc. |
| | Complete welding task | Injury, Burns | • Welded parts will be extremely hot! Use caution in unclamping and handling welded parts.<br>• Sparks and/or molten metal are present while welding. Stand or position yourself to minimize potential spatter, especially on pants. |
| | | Light radiation | • Never strike an arc or weld without helmet lowered to protect eyes from radiation and spatter. |
| | | Electrical hazards | • Immediately report any problems to lab supervisor. Welding requires voltages and high currents that are dangerous!! |
| | Turn off welder | Smoke, fumes | • Always switch the welder to the off position when completed.<br>• Close the gas tank valve by turning it CW.<br>• Store cables, foot pedal, hoses in a neat fashion to avoid trip hazards.<br>• Ensure that exhaust fan is turned off after welding shut down is complete. |
| | Clean work area and return all PPE to their proper storage area. | Injury | • Ensure adequate housekeeping measures to prevent accidents. |

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.***