



Welding

1. Company Policy

Hbar Technologies, LLC, is committed to providing a safe work environment for all its employees. On occasion, welding, cutting or brazing may be required of employees in the construction and/or repair of equipment. These activities introduce hazards to the employee performing the work and also to those employees in the vicinity of the welding activity.

In all work activities, exposures shall be maintained below the prescribed limits, requiring pre-planning of work, the use of local exhaust and/or dilution ventilation, protective equipment and clothing, and the active participation of each employee.

Compliance with the requirements is the responsibility of all affected employees of Hbar Technologies. Implementation will be coordinated by the ES&H Officer. Questions regarding the applicability of this policy to a specific work activity should be addressed to the Primary Investigator (PI) or the ES&H Officer.

2. Exposure Limits

It is impossible to predict what materials will be used in the course of the research and development activities. As such, it is inconceivable that all relevant exposure limits could be listed in this procedure. Hbar Technologies, LLC will use those permissible exposure limits as included in the OSHA regulations and in the absence of a specific regulation for that chemical or substance the recommendation of the ACGIH. For reference, the OSHA regulations are contained in 29CFR1910 Subpart Z. Questions regarding the specific limit for a chemical or substance should be referred to the ES&H Officer.

3. Exposure Assessment

Considering the limited nature of welding, cutting and brazing activities conducted at Hbar Technologies, LLC and the area provided for welding and cutting activities, it is unlikely that the permissible exposure limits will be exceeded. Upon request for specific activities, measurements can be performed by the ES&H Officer.

4. Employee Training and Information

Hbar Technologies staff will be trained in the requirements of this program and procedure.

Individuals designated to operate arc welding equipment shall have been properly instructed and qualified to operate such equipment. This instruction must include:

- An orientation to and mitigation of the hazards to the employee and his/her co-workers associated with arc welding.
- An orientation to any safety mechanisms installed on the equipment, i.e. guards, operator operated switches.
- The type and use of any fire extinguishing equipment available.
- Location of first aid equipment and locations of medical treatment facilities. Refer to company policy regarding Injuries and Illnesses for additional guidance.
- The location of the disconnect associated with the device.
- The limitations of the equipment.
- The use and operation of the equipment in accordance with manufacturer's instructions.
- Appropriate maintenance and storage of the welding device.

5. Protective Clothing and Equipment and Other Measures

A. Protective Clothing

- (1) Individuals engaged in welding, cutting or brazing activities are required to wear garments consisting of all natural fibers as the outer layer. These outer garments will consist of long sleeves, long pants, and gloves.
- (2) Helpers or attendants (including fire watches) shall be provided with proper eye protection.
- (3) A hood or shield is required by exposed individuals when an arc is present. The hood or shield shall be capable of protecting the neck as well as the face. Safety glasses will be worn underneath a shield. If hazards are present that would warrant wearing safety glasses (dusty conditions, flying debris, etc.), safety glasses shall be worn under the hood. Glasses need to be tint-free.
- (4) Nuisance level respirators can be made available to employees.

B. Protective Equipment

- (1) Suitable fire extinguishers shall be available and maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hose or portable extinguishers depending upon the nature and quantity of the combustible material exposed. Employees shall be trained in the use of the equipment made available.
- (2) Welding curtains shall be erected around the welding area for protection.

C. Protective Measures

- (1) Fire hazards shall be removed from the immediate vicinity of the welding activity. If this is not possible, then guards shall be used to confine the heat, sparks, and slag and to prevent combustion.
- (2) Whenever welding or cutting is performed in locations where other than a minor fire might develop, a fire watch is required. A fire watch is a second person assigned the responsibility of spotting a fire in the vicinity of the work. The fire watch shall perform no other duty that would interfere with his/her fire watching responsibilities. A fire watch is required for a period of 15 minutes following the cessation of the welding or cutting activity.
- (3) The checklist in the attachment to this procedure shall be completed by the PI prior to the initiation of the welding or cutting activity and will be used to authorize the welding activity. The checklist shall be posted in the work area.
- (4) Employee(s) shall alert others in the area that welding will be commencing. A sign should be used in addition to verbal conversation.
- (5) Gas cylinders used in the welding process shall be secured, preferably to the cart.
- (6) Dilution ventilation should be used as weather permits. This may include opening the roll-up door or using the shop fan.

6. Recordkeeping

In the instance that airborne levels are measured, the requesting employee and all affected employees shall be provided a copy of the record.

Records of such monitoring shall be maintained by Hbar Technologies during its operation.

Elaine Marshall, ES&H Officer

Date

Gerald Jackson, President

Date



"Making Antimatter Matter"

1275 W. Roosevelt Road
Suite 103
West Chicago, IL 60185
Phone: (630) 231-7077
Fax: (630) 231-7086
www.hbartech.com

Welding Checklist/Authorization

Date Issued: _____ Expiration Date: _____

Activity Type: Welding Cutting Brazing

Equipment Being Used: Miller Gas Welder Electric

Description of the work activity (include material): _____

Fire Extinguisher Present YES NO

Alarm/Extinguishing System Disablement Necessary? YES NO

Fire Watch? YES NO

Special Instructions: _____

Authorized Persons: _____

Issued By (PI): _____

Print

Sign

Return original to ES&H Officer upon expiration.