



## #13-Brazing/Soldering-Safe Job Procedure-(Final Oct./04)

### 1. Purpose:

All workers shall receive training in the safe use of equipment and process, safe work practices and emergency procedures.

### 2. General:

Brazing or soldering involves a filler metal or alloy (a combination of metals) which has a lower melting point than the metal pieces to be joined. The filler materials (such as tin, lead and cadmium) can be very toxic.

### 3. Procedure:

#### 3.1 Personal Protective Equipment-

**Personal protective equipment should always be used along with, but never instead of, engineering controls and safe work practices.**

**Eye protection should always be used for all operations to protect the eyes from bright light and heat. For the best protection, wear face shields or helmets and goggles. To keep particles out of you eyes when removing your face shield, tip your head forward and keep your eyes closed.**

**Welding helmets, goggles, or other eye protectors must contain special filter plates or lenses for workers exposed to brazing.**

**Hearing protection should be used during noisy operations such as silver soldering, etc.**

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### **3.2 Work in Confined Spaces-**

As used herein, confined space is intended to mean a relatively small or restricted space such as a tank, boiler, pressure vessel, etc.

**Ventilation is a prerequisite to work in confined spaces, refer to the safe work procedure for working in a confined space.**

**In order to eliminate the possibility of gas escaping through leaks or improperly closed valves when in use, the torch valves shall be closed and the fuel gas supply shut off at some point outside the confined space whenever the torch is not in use for a substantial period of time, such as, during lunch or overnight. Where practical the torch and the hose shall also be removed from the confined space.**

### **3.3 Health Protection and Ventilation-**

**Brazing (welding filler metals containing significant amounts of cadmium ) shall carry the following notices on tags, boxes, or other containers: WARNING CONTAINS CADMIUM POISONOUS FUMES MAY BE FORMED ON HEATING. Do not breathe fumes. Cadmium can cause serious damage to the lungs and kidneys. Always use good ventilation, which draws the smoke away from the breathing zone, or use a respirator fitted with a fume filter.**

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**Brazing fluxes containing fluoride compounds shall have a cautionary wording to indicate that they contain fluoride compounds. One such wording could be as follows: CAUTION CONTAINS FLUORIDES. These fluxes when heated gives OFF fumes, which can irritate eyes, nose and throat. Avoid fumes- use only in well-ventilated areas. Do not take internally.**

### **3.4 Cleaning Compounds-**

In the use of cleaning materials, because of their possible toxicity or flammability, precautions such as the manufacturer's instructions shall be followed.

### **3.5 Fire Prevention and Protection-**

**Whenever there are floor openings or cracks in the flooring that cannot be closed precautions shall be taken so that no readily combustible materials on the floor below will be exposed to sparks which might drop through the floor. The same precautions shall be observed in regards to cracks or holes in walls, open doorways and open or broken windows.**

**Suitable fire extinguishing equipment shall be maintained in a state of readiness. Such equipment may consist of pails of water, buckets of sand, hose or portable fire extinguishers depending upon the nature and quantity of the combustible materials.**

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**Where combustible materials such as paper clippings, wood shavings or textile fibers are on the floor, the floor shall be swept clean.**

### **3.6 Fuel Gas Systems for Brazing and Soldering**

**All portable cylinders used for storage and shipment of compressed gas shall be maintained in accordance with regulated authorities.**

**Cylinder valves shall be closed and caps replaced onto cylinders before moving cylinders.**

**Cylinder valves shall be closed when work is finished.**

**REGULATORS SHALL HAVE THE PRESSURE RELEASED WHEN NOT IN USE.**

**Valves of empty cylinders shall be closed.**

**Cylinders shall not be placed where they might become part of an electric circuit such as contact with rails, trolley wires, etc.... shall be avoided. Cylinders shall be kept away from radiators, piping systems, layout tables, etc. that may be used for grounding electrical circuit s such as for arc welding machines.**

**Cylinders shall never be used as rollers or supports, whether full or empty.**

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**A hammer or wrench shall not be used to open cylinder valve unless the tank does not have a valve or the tank requires a wrench to operate the valve. If valve cannot be opened, the supplier shall be notified.**

**Cylinder shall be handled carefully. Cylinders shall not be subjected to rough handling, knocks or falls, which are liable to damage the cylinder, valve or safety devices, which might cause a leakage.**

**If cylinders are found to have leaky valves or fittings, which cannot be stopped by closing off the valve, the cylinder shall be taken outdoors away from sources of ignition and slowly emptied.**

**A warning shall be placed near cylinders having a leakage, fuse plugs or other leaking safety devices not to approach them with any source of ignition. Such cylinders should be plainly tagged: the supplier shall be promptly notified and his instructions as to their return.**

Safety devices shall not be tampered with.

The cylinder valve shall always be opened slowly.

**If acetylene has been stored in the horizontal position , it should be stood up for a minimum of 4 hours before use.**

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### **3.7 Lighting Procedure-**

**Set pressure (pounds)as follows:**

<b>Acetylene</b>	<b>5-15</b>
<b>Oxygen</b>	<b>20-60</b>

**Ignite acetylene first**