Training Record

LOCATION NAME	PHYSICAL ADDRESS	NEARTEST CITY	STATE	ZIP

	PRINTED NAME (include company name if subcontractor) **NOMBRE EN LETRA IMPRENTA** (si es subcontratista, incluya el nombre de la compañía)	*Signature / Firma*
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use p.2 for additional participants

Check the following to indicate completion and identify any other activities or resources used or referenced.

- ☐ *Communicated the contents of this program and any applicable regulations, and where and how to access both.*
- ☐ *Administered the training quiz (attached if completed individually).*
- ☐ *Reviewed the SDS for acetylene and identify flash point and vapor density.*
- ☐ *Reviewed SDS for electrodes and discuss symptoms of welding fume fever.*
- ☐ *Determined if lens filter being used is appropriate shade for work at hand.*
- ☐ *Inspected torch rig and cylinder storage for compliance.*
- ☐ *Discussed electrical shock hazards and controls associated with arc welding.*
- ☐ *Evaluated work area fire hazards, and reviewed applicable items on hot work permit (if permit in use).*
- ☐
- ☐

SUPERVISOR/FACILITATOR'S NAME *Signature* **DATE**

	PRINTED NAME (include company name if subcontractor) **NOMBRE EN LETRA IMPRENTA** (si es subcontratista, incluya el nombre de la compañía)	*Signature / Firma*
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Welders and their supervisors will have received appropriate training not only in their trade, but in the safe operation of their equipment and safe methods for the welding process itself. Workers in charge of arc welding equipment or oxygen/fuel-gas supply equipment (including distribution piping systems and generators) must be instructed on how to use the equipment and their competence and qualifications for such work must be evaluated. Welders must report any equipment defect or safety hazards and discontinue use of unsafe equipment until adequate corrective action has been taken. Repairs may be made only by qualified personnel.

OTHER HOT WORK

Arc welding and torch cutting are not the only types of hot work that can generate heat and sparks in sufficient quantity and intensity to pose a fire hazard. Grinding, in particular, may require similar precautions in examining the work environment and controlling the exposure to combustibles and flammables. And, when explosive vapors are present, or when there is the potential for hazardous accumulations of combustible dust, such as in food and agricultural plants, plastics manufacturers, and textile mills, even a spark from a simple hand tool can cause a catastrophic chain of explosions.

RADIANT ENERGY

Employees performing any type of welding, cutting, or heating, which generates radiant energy, will be provided suitable eye protection in accordance with 29 CFR 1926 Subpart E:

FILTER LENS SHADE NUMBERS FOR PROTECTION AGAINST RADIANT ENERGY

Shielded metal-arc welding 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes	10
Gas-shielded arc welding (nonferrous) 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes	11
Gas-shielded arc welding (ferrous) 1/16-, 3/32-, 1/8-,5/32-inch diameter electrodes	12
Shielded metal-arc welding 3/16-, 7/32-, 1/4-inch diameter electrodes	12
5/16-, 3/8-inch diameter electrodes	14
Atomic hydrogen welding	10-14
Carbon-arc welding	14
Soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, over 6 inches	5 or 6
Gas welding (light), up to 1/8-inch	4 or 5
Gas welding (medium), 1/8-inch to 1/2-inch	5 or 6
Gas welding (heavy), over 1/2-inch	6 or 8

GAS WELDING & CUTTING

Transporting, moving, and storing of gas cylinders

Valve protection caps must be placed and secured when transporting, moving, and storing gas cylinders.

Cylinders must be secured in an upright position, including when transported by powered vehicles, except for short periods when being carried and hoisted. A suitable cylinder truck, chain, or other steadying device must be used to keep cylinders from being knocked over while in use.

Oxygen cylinders in storage must be separated from fuel- gas cylinders or combustible material by a minimum of 20 feet or a noncombustible barrier at least 5 feet high having a one-half hour fire rating. Inside buildings, cylinders must be stored in a well-protected, well-ventilated, dry location.

Placing cylinders

Cylinders must be kept far enough away from the actual welding or cutting operation so that sparks, hot, slag, or flame will not reach them. When this is impractical fire resistant shields must be provided.

Cylinders containing oxygen or acetylene or other fuel gas may not be taken into a confined space.

No damaged or defective cylinder may be used.

Use of Fuel Gas

Before attaching a regulator, the cylinder valve must be opened slightly and closed immediately (“cracking”).

Valves may not be opened more than one and one- half turns.

Hoses

The fuel gas hose and oxygen hose must be easily distinguishable from each other.

All hoses in use carrying acetylene, oxygen and other gas that may ignite or enter into combustion, or be harmful to employees must be inspected at the beginning of each work shift.

Torches

Torches must be inspected at the beginning of each shift for leaking valves, hoses, and tip connections.

Torches may be lighted only by friction lighters or other approved devices.

ARC WELDING AND CUTTING

Manual Electrode Holders

Any current-carrying parts through the portion of the holders which the arc welder or cutter grips in his hand, and the outer surfaces of the jaws of the holders, must be fully insulated against the maximum voltage encountered to ground.

Welding Cables and Connectors

All arc welding and cutting cables must be of the completely insulated, flexible type, capable of handling the maximum current requirements of the work in progress.

Only cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder is connected may be used, except that cables with standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted.

Ground returns and Machine Grounding

The frames of all arc welding and cutting machines must be grounded either through a third wire in the cable containing the circuit conductor or through a separate wire which is grounded at the source of the current.

All ground connections must be inspected to ensure that they are mechanically strong and electrically adequate for the required current.

Operating Instructions

When electrode holders are to be left unattended, the electrodes must be removed and the holders must be so placed or protected that they cannot make electrical contact with employees or conducting objects.

Shielding

Whenever practicable, all arc welding and cutting operations must be shielded by noncombustible or flameproof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc.

BREATHING HAZARDS

Welding, cutting, and heating, not involving volatile or harmful coatings or materials, may typically be performed without mechanical ventilation or respiratory protective equipment. However, if the material or coating does create a hazard (e.g. galvanized steel, lead paint, hexavalent chromium, etc.) that could exceed the permissible exposure limit, or when the welding activity itself could deplete the oxygen content in an enclosed area, then suitable ventilation and/or respirators will be provided. The first step will be to determine the extent of the exposure, followed by implementation of the protective measures based on other applicable standards, including respiratory protection.

WELDING, CUTTING, OR HEATING THAT INCREASES BREATHING AND FIRE HAZARDS

Confined Spaces – For the elimination of possible fire in enclosed spaces as a result of gas escaping through leaking or improperly closed torch valves, the gas supply to the torch must be positively shut off at some point outside the enclosed space whenever the torch is not to be used or whenever the torch is left unattended for a substantial period of time, such as during the lunch period. Overnight and at the change of shifts, the torch and hose must be removed from the confined space. Open-end fuel gas and oxygen hoses must be immediately removed from enclosed spaces when they are disconnected from the torch or other gas-consuming device.

When sufficient ventilation cannot be obtained without blocking the means of access, employees in the confined space must be protected by airline respirators, and an employee on the outside of such a confined space must be assigned to maintain communication with those working within it and to aid them in an emergency.

Preservative Coatings – Before welding, cutting, or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test must be made by a competent person to determine its flammability.

Precautions must be taken to prevent ignition of highly flammable hardened preservative coatings. When coatings are determined to be highly flammable, they must be stripped from the area to be heated to prevent ignition.

In enclosed spaces, all surfaces covered with toxic preservatives must be stripped of all toxic coatings for a distance of at least 4 inches from the area of heat application, or the employees must be protected by airline respirators, meeting the requirements of Subpart E of this part.

In the open air, if the fumes or vapors exceed the permissible limits, employees must be protected by a respirator, in accordance with requirements of Subpart E of OSHA Standards for the Construction Industry.

Drums and Containers – Except when the contents are being removed or transferred, drums, pails, and other containers which contain or have contained flammable liquids must be kept closed. Empty containers must be removed to a safe area apart from hot work operations or open flames.

Drums containers, or hollow structures which have contained toxic or flammable substances must, before welding, cutting, or heating is undertaken on them, either be filled with water or thoroughly cleaned of such substances and ventilated and tested. For welding, cutting and heating on steel pipelines containing natural gas, the relevant portions of regulations from the DOT Office of Pipeline Safety, 49 CFR Part 192, Minimum Federal Safety Standards for Gas Pipelines, will apply. Before heat is applied to a drum, container, or hollow structure, a vent or opening must be provided for the release of any built-up pressure during the application of heat.

WELDING FUME FEVER

The welding process produces visible smoke that contains harmful metal fume and gas by-products.

Health Effects

Acute exposure to welding fume and gases can result in eye, nose and throat irritation, dizziness and nausea.

Workers in the area who experience these symptoms should leave the area immediately, seek fresh air and obtain medical attention.

Prolonged exposure to welding fume may cause lung damage and various types of cancer, including lung, larynx and urinary tract.

Health effects from certain fumes may include metal fume fever, stomach ulcers, kidney damage and nervous system damage. Prolonged exposure to manganese fume can cause Parkinson's–like symptoms.

Gases such as helium, argon, and carbon dioxide displace oxygen in the air and can lead to suffocation, particularly when welding in confined or enclosed spaces. Carbon monoxide gas can form, posing a serious asphyxiation hazard.

Controlling the Exposure

Welders should understand the hazards of the materials they are working with. OSHA's Hazard Communication standard requires employers to provide information and training for workers on hazardous materials in the workplace.

Welding surfaces should be cleaned of any coating that could potentially create toxic exposure, such as solvent residue and paint.

Workers should position themselves to avoid breathing welding fume and gases. For example, workers should stay upwind when welding in open or outdoor environments.

General ventilation, the natural or forced movement of fresh air, can reduce fume and gas levels in the work area. Welding outdoors or in open work spaces does not guarantee adequate ventilation. In work areas without ventilation and exhaust systems, welders should use natural drafts along with proper positioning to keep fume and gases away from themselves and other workers.

Local exhaust ventilation systems can be used to remove fume and gases from the welder's breathing zone. Keep fume hoods, fume extractor guns and vacuum nozzles close to the plume source to remove the maximum amount of fume and gases. Portable or flexible exhaust systems can be positioned so that fume and gases are drawn away from the welder. Keep exhaust ports away from other workers.

Consider substituting a lower fume-generating or less toxic welding type or consumable.

Do not weld in confined spaces without ventilation.

Respiratory protection may be required if work practices and ventilation do not reduce exposures to safe levels. Depending on the type of metal, additional precautions may be necessary (e.g. stainless steel – see hexavalent chromium program, if applicable).

GENERAL VENTILLATION

General mechanical ventilation must be of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits, as defined in Subpart D of the OSHA Standards for the Construction Industry. Contaminated air exhausted from a working space must be discharged into the open air or otherwise clear of the source of intake air. Oxygen may not be used for ventilation purposes, comfort cooling, blowing dust from clothing, or for cleaning the work area. Other employees exposed to the same atmosphere as the welders or burners must be protected in the same manner as the welder or burner. Any welding, cutting or burning of lead base metals, zinc, cadmium, mercury, beryllium or exotic metals or paints not listed here shall have proper ventilation or respiratory protection.

FIRE PREVENTION

When practical, objects to be welded, cut, or heated must be moved to a designated safe location or, if the objects to be welded, cut, or heated cannot be readily moved, all movable fire hazards in the vicinity must be taken to a safe place, or otherwise protected (e.g. fire blankets). If the object to be welded, cut, or heated cannot be moved and if all the fire hazards cannot be removed, then guards will be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards from them.

No welding, cutting, or heating may be done where the application of flammable paints or the presence of other flammable compounds, or heavy dust concentrations creates a hazard.

Suitable fire extinguishing equipment must be immediately available in the work area and must be maintained in a state of readiness for instant use.

When the welding, cutting, or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel must be assigned to guard against fire while the actual welding, cutting, or heating operation is being performed, and for a sufficient amount of time after completion of the work to ensure that no possibility of fire exists (a “fire watch”). Such personnel must be instructed as to the specific anticipated fire hazards, must be trained in the use of fire extinguishing equipment, and familiar with facilities for sounding an alarm in the event of a fire. A fire watch is required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:

1. Appreciable combustible material, in building construction or contents, closer than thirty-five feet (35’) to the point of operation.
2. Appreciable combustibles are more than thirty-five feet (35’)away but are easily ignited by sparks.
3. Wall or floor openings within a thirty-five feet (35’) radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
4. Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

When welding, cutting, or heating is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions must be taken on the opposite side as are taken on the side on which the welding is being performed. If welding or cutting cannot be conducted safely then the welding or cutting may not be performed.

In addition to the OSHA regulations, applicable safety standards are found in NFPA 51B, which is the National Fire Protection Associations standard for *Fire Prevention During Welding, cutting, and Other Hot Work* and NFPA 61B, which is the standard for the *Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities*. Copies of both standards are available through the safety representative.

HOT WORK PERMITS

The use of a Hot Work Permit is often required in order to help ensure that all necessary precautions have been taken. Many of the facilities in which we work have their own hot work permit procedures that must be followed. When the facility does not require its own permit and procedures, the Hot Work Permit on the following page may be used. Specific hazard control procedures should be developed in coordination with a safety representative in the pre-job planning portion of any project with significant hot work exposures. When a fire watch is necessary, the duration of the watch after the work is complete should be indicated on the permit and should always be at least thirty (30) minutes. Fire watches must receive adequate training (see Fire Protection & Prevention Program).

Before cutting or welding is permitted, the area must be inspected and evaluated. Authorization is conditional on certain controls and procedures. All of these controls must be in place and all of these procedures must be followed. Do not authorize the hot work, verbally or on a written permit, without inspection and evaluation of the work area.

HOT WORK PERMIT

Always Consider A Safer Alternative and Use It If Practical!

Before initiating any hot work, ensure appropriate precautions are in place, including having a fire extinguisher(s) readily available.

This hot work permit is for any operation involving open flame or producing heat and/or sparks. This includes, but is not limited to, welding, brazing, cutting, grinding, soldering, thawing pipe, torch-applied roofing, or chemical welding.

DATE

COMPANY

LOCATION

Facility Name | *Bldg Name or #* | *Floor#*

WORK DESCRIPTION

PERSON(S) PERFORMING ACTUAL HOT WORK

Name | *signature*

START TIME | END TIME

Permit may not extend more than twelve (12) hours.

PERSON AUTHORIZING THE HOT WORK HAS VERIFIED THAT THE SPECIFIED LOCATION HAS BEEN EXAMINED AND THAT THE PRECAUTIONS IDENTIFIED ON THE FOLLOWING CHECKLIST(S) HAVE BEEN TAKEN.

Name | *Title* | *Company*

signature

✓ **TO INDICATE PRECAUTION VERFIFIED OR WRITE "NA" IF NOT APPLICABLE**

- ☐ Available sprinklers, hose streams, and extinguishers are in service and operable.
- ☐ Hot work equipment is in good working condition in accordance with manufacturer's specifications.
- ☐ Special permission obtained to conduct hot work on metal vessels or piping lined with rubber or plastic.

Requirements Within thirty five feet (35') Of Hot Work

- ☐ Flammable liquid, oily deposits, and all combustible dust/lint removed (NOTE: food and agricultural products, textiles & plastics processes can all produce combustible dust. Consult NFPA 61B for additional guidance.)
- ☐ Explosive atmosphere in area eliminated.
- ☐ Floors swept clean and trash removed.
- ☐ Combustible floors wet down or covered with damp sand or fire-resistive/noncombustible materials or equivalent.
- ☐ Personnel protected from electrical shock when floors are wet.
- ☐ Other combustible storage material removed or covered with listed or approved materials (welding pads, blankets, or curtains; fire-resistant tarpaulins), metal shields, or noncombustible materials.
- ☐ All wall and floor openings covered and all open spouts sealed or plugged.
- ☐ Ducts and conveyors that might carry sparks to distant combustibles/flammables covered, protected, or shut down.

Requirements For Hot Work On Walls, Ceilings, or Roofs

- ☐ Construction is noncombustible and without combustible coverings or insulation.
- ☐ Combustible material on other side of walls, ceilings, or roofs is moved away.

Requirements For Hot Work On Enclosed Equipment

- ☐ Enclosed equipment is cleaned of all combustibles.
- ☐ Containers are purged of flammable liquid/vapors.
- ☐ Pressurized vessels, piping, and equipment removed from service, isolated, and vented.

Requirements For Hot Work Fire Watch And Fire Monitoring

- ☐ Fire watch is provided with suitable extinguishers and, where practical, a charged small hose.
- ☐ Fire watch is trained in use of equipment and in sounding alarm.
- ☐ Fire watch is able to monitor all affected areas; or
- ☐ Fire watch is provided during and for a minimum of thirty (30) minutes after hot work (no breaks).
- ☐ If monitoring time for hot work area extended beyond 30 minutes, specify time: ☐

Additional Requirements When There Is a Potential Combustible Dust Exposure

- ☐ Spark-producing portable power tools and propellant-actuated tools prohibited where dust hazard is present.
- ☐ Combustible dust or flammable vapor-producing machinery or operations in the area shut down and cleaned.
- ☐ Fire watch is provided during and for a minimum of sixty (60) minutes after hot work, including any work breaks.
- ☐ If monitoring time for hot work area extended beyond 60 minutes, specify time: ☐

HOT WORK PERMIT (back)

EMERGENCY CONTACT NUMBERS

√ *One or Both*

☐ 9-1-1 SERVICE AVAILABLE

☐ FACILITY OR OTHER EMERGENCY CONTACT #

_____ - _____ - _____

ENTER FACILITY OR OTHER EMERGENCY CONTACT NUMBER

SUMMARY

1. Only a qualified person can make repairs to welding equipment.
2. Employees performing any type of welding, cutting, or heating must use appropriate personal protective equipment, including shaded eye protection.
3. First aid equipment must be available at all times.
4. Valve protection caps must be used on gas cylinders during storage and transport; cylinders must be secured in an upright position and oxygen; and fuel gas cylinders (e.g. acetylene) must be separated in storage by at least twenty feet (20') or by an OSHA-compliant non-combustible barrier.
5. Cylinders containing oxygen or acetylene or other fuel gas may not be taken into a confined space.
6. All torches and hoses must be inspected at the beginning of each shift. No damaged or defective cylinder may be used.
7. Torches may be lighted only by friction lighters or other approved devices.
8. Only welding cable free from repair or splices for a minimum distance of ten feet (10') from the cable end to which the electrode holder is connected may be used, and the frames of all arc welding and cutting machines must be grounded.
9. When electrode holders are to be left unattended, the electrodes must be removed and the holders placed or protected that they cannot make contact with employees or conducting objects.
10. Welding curtains/screens should always be used.
11. No welding, cutting, or heating may be done where the application of flammable paints or the presence of other flammable compounds, or heavy dust concentrations creates a hazard.
12. Fire extinguishers must be immediately on hand at the point of the hot work and at any location affected by the hot work (e.g. lower level, adjacent room, top side of a ceiling, etc.). Anyone designated as a fire watch must receive adequate instruction in extinguisher use and may not have any other responsibilities during the fire watch assignment.
13. Welding or cutting in confined spaces or on materials with preservative coatings or on drums and containers create unique and deadly hazards. Before you begin, ask your supervisor for instruction on additional precautions. Assistance is available through the safety department.
14. The exposure to all flammable and combustible material must be controlled before any work that may generate heat and sparks in sufficient quantity and intensity to pose a fire hazard, including welding, torch cutting, grinding and saw cutting. Keep flammables and combustibles at least thirty-five feet (35') away from all heat exposures (i.e. direct heat, heat transfer, flying/falling sparks/flux/slag, etc.). Certain exposures (e.g. combustible dust) may require greater distance. If adequate distance cannot be achieved, then the flammables/combustibles must be protected by other means (e.g. fire blankets, fire partitions, dust collection, etc.).
15. Hot Work Permits are intended to facilitate fire/explosion controls and are mandatory in many facilities. If you use a hot work permit, make sure you understand all applicable procedures that are identified on the form BEFORE signing it and then FOLLOW THE PROCEDURES!

SOLDADURA, CORTE Y OTROS TRABAJOS EN CALIENTE – RESUMEN

1. Sólo una persona calificada puede hacer reparaciones para equipo de soldadura.
2. Los empleados que realizan cualquier tipo de soldadura, corte o calentamiento deben usar equipo de protección personal apropiado, incluyendo caretas de protección ocular.
3. Los suministros / equipos de primeros auxilios deben estar disponibles en todo momento.
4. Deben usarse tapas de protección de válvulas en cilindros de gas durante su almacenamiento y transporte. Los cilindros deben ser asegurados en una posición vertical, el óxigeno y el gas combustible (como acetileno) deben estar separados en su lugar de almacenamiento por lo menos veinte pies (20') o por una barrera no combustible que cumpla los requisitos de OSHA.
5. Los cilindros que contienen oxígeno o acetileno u otro gas combustible no pueden ser llevados a un espacio confinado.
6. Los sopletes deben ser inspeccionados al inicio de cada turno para buscar fugas en válvulas, mangueras o en las conexiones de la boquilla. No se puede usar ningún cilindro dañado o defectuoso.
7. Los sopletes pueden ser encendidos solamente por encendedores de soplete o por otros dispositivos aprobados.
8. Solamente pueden usarse cables de soldar sin reparaciones ni empalmes para una distancia mínima de diez pies (10') desde el extremo del cable al cual se conecta el portaelectrodo. Los bastidores de todas las máquinas de soldadura al arco y las máquinas de corte deben estar puestos a tierra.
9. Cuando los portaelectrodos deban quedar sin supervisión, se deben retirar los electrodos y los portaelectrodos deben colocarse o protegerse de forma que no puedan hacer contacto eléctrico con los empleados ni con objetos conductores de electricidad.
10. Siempre deben usarse cortinas/pantallas de soldadura.
11. No puede realizarse ninguna soldadura, corte, o calentamiento donde la aplicación de pinturas inflamables o la presencia de otros compuestos inflamables, o fuertes concentraciones de polvo creen un peligro.
12. Los extintores deben estar inmediatamente disponibles en el lugar de trabajo en caliente y en toda ubicación afectada por el trabajo en caliente (por ejemplo, nivel inferior, sala adyacente, lado superior de un techo, etc.). Cualquiera que haya sido designado para vigilancia de incendio deberá recibir la instrucción adecuada en el uso de extintor y no podrá tener ninguna otra responsabilidad durante la asignación de vigilancia.
13. Soldadura o cortes en espacios confinados, en materiales con recubrimientos conservantes o en barriles o recipientes crean sólo peligros mortales. Antes de empezar, solicite a su supervisor instrucciones sobre las precauciones adicionales. Encuentre asistencia disponible en el departamento de seguridad.
14. La exposición a todo material inflamable y combustible debe ser controlada antes de cualquier trabajo que pueda generar calor y chispas en la cantidad e intensidad suficientes para presentar un peligro de incendio, incluyendo soldar, corte con soplete, amolado y corte con sierra. Mantenga los materiales inflamables y combustibles por lo menos treinta y cinco pies (35'), alejado de toda exposición al calor (fuego directo, transferencia de calor, desprendimientos, chispas, fundente, escoria, etc.). Ciertas exposiciones (por ejemplo polvo combustible) pueden necesitar una mayor distancia. Si no se puede lograr la distancia adecuada, entonces los combustibles o cualquier material inflamable deben ser protegidos por otros medios (por ejemplo mantas ignífugas, divisiones con cortafuegos, acumulaciones de polvo, etc.).
15. Los permisos de trabajo en caliente tienen el propósito de facilitar los controles de explosión/fuego y en muchos casos, son obligatorios en varias infraestructuras. Si utiliza un permiso de trabajo en caliente, ANTES de firmarlo, asegúrese que entienda todos los procedimientos aplicables que se identifican en el formulario y ¡RESPETE LOS PROCEDIMIENTOS!

TRAINING PLAN

A. *Communicate the contents of this program and any applicable regulations, and where and how to access both.*

B. *Administer the following quiz and make sure all participants know and understand the correct answers. This can be a group exercise, or the blank quiz at the end can be used by individual participants.*

1 The lens filter shade required for Shielded Metal Arc Welding (SMAW) with an 1/8" diameter electrode is #
- **a** 14
- **b** 5
- ✓ **c** 10
- **d** 2

2 When left unattended, electrodes must be _____ _____ the holder, which must be so placed or protected that it cannot make electrical contact with employees or conducting objects.
- **a** Left in
- ✓ **b** Removed from
- **c** Connected to

3 29 CFR Subpart J prohibits repairs and splices in a welding lead within ____ of the electrode holder.
- ✓ **a** 10 feet
- **b** 12 inches
- **c** 20 feet

4 Identify the compressed gas cylinder storage requirements.
- **a** Disassemble if not to be used again within 24 hours.
- **b** Store upright and secure against tipping.
- **c** Screw the caps on the valves.
- **d** Separate oxygen and fuel gas (20' or a fire partition).
- ✓ **e** All of the above

5 Welding or cutting in a confined space can create significant breathing hazards.
- ✓ **a** True
- **b** False

1 La pantalla de filtro de lente necesaria para Shielded Metal Arc soldadura (SMAW) con un electrodo de 1/8" de diámetro es #
- **a** 14
- **b** 5
- ✓ **c** 10
- **d** 2

2 Cuando las pinzas de soldadura deben ser dejados sin supervisión, los electrodos _____ ___ _____ y los titulares estarán dispuestos o protegidos que no pueden hacer contacto eléctrico con los empleados u objetos conductores.
- **a** mantener en lugar
- ✓ **b** deberán ser retirados
- **c** mantenerse conectado a

3 29 CFR Subparte J - Sólo por cable libre de la reparación o empalmes para una distancia mínima de _____ desde el extremo del cable a la que se utiliza el soporte del electrodo está conectado
- ✓ **a** 10 pies
- **b** 12 pulgadas
- **c** 20 pies

4 Identificar los requerimientos de almacenamiento de información de cilindros de gas comprimido.
- **a** Desmontar si no para ser utilizada nuevamente dentro de las 24 horas.
- **b** Conservar en posición vertical y asegúrelos contra vuelcos.
- **c** Atornille las tapas sobre las válvulas
- **d** Gas combustible y oxígeno separado (20 pies o por partición de fuego)
- ✓ **e** todo lo anterior

5 Soldadura o corte en espacios confinados puede crear peligros respiratorios significativos.
- ✓ **a** Verdadero
- **b** Falso

6 When can the actual oxygen and acetylene cylinders be taken inside of a confined space?
- **a** When there is adequate ventilation
- **b** With approval from a competent person
- **c** When noted on a confined space entry permit
- ✓ **d** Never

7 If not stripped back a sufficient distance from the area to be heated, what are some of the hazards that can be created by preservative coatings?
- **a** Toxic vapors
- **b** Coatings that will burn, or give off flammable vapors
- ✓ **c** Both A and B

8 Simply emptying a metal drum or other container of flammable liquid will make it safe to apply heat.
- **a** True
- ✓ **b** False

9 What should workers do under a hot work permit?
- **a** Complete it before visually assessing the work area
- **b** Mark the 35' safe space even when combustibles and flammables are, or will be, within the 35'
- **c** Use the fire watch as tool runner
- ✓ **d** Inspect the work area, determine what will be affected by the hot work, including adjacent areas and activities performed by other contractors, carefully complete the permit, and adhere to the conditions stipulated therein.

6 ¿Cuándo puede tomar los cilindros de oxígeno y acteylene dentro de un espacio confinado?
- **a** Con adecuada ventilación
- **b** Con la aprobación de una persona competente
- **c** Cuando en el permiso de entrada
- ✓ **d** Nunca

7 Si no eliminas los recubrimientos preservativos, ¿cuáles son los riesgos?
- **A** Vapores tóxicos
- **B** Recubrimientos que quemar, o desprender vapores inflamables
- ✓ **C** Tanto A y B

8 Un tambor o contenedor que se ha vaciado de líquido inflamable es seguro para cortar o soldar.
- **a** Verdadero
- ✓ **b** Falso

9 ¿Qué deben hacer los trabajadores bajo un permiso de trabajo caliente?
- **a** Completar antes de evaluar visualmente el área de trabajo
- **b** Marcar el evento de zona segura de pie 35 si son materiales que quemará o estallará dentro de la zona de seguridad
- **c** utilizar el vigilante de fuego para recuperar herramientas
- ✓ **d** Inspeccione el área de trabajo, determinar lo que se verán afectados por los trabajos en caliente, incluyendo áreas adyacentes y las actividades realizadas por otros contratistas, cuidadosamente completar el permiso y cumplir con las condiciones estipuladas en el mismo.

C. *Review the SDS for acetylene and identify flash point and vapor density.*
D. *Review SDS for electrodes and discuss symptoms of welding fume fever.*
E. *Determine if lens filter being used is appropriate shade for work at hand.*
F. *Inspect torch rig and cylinder storage for compliance.*
G. *Discuss electrical shock hazards and controls associated with arc welding.*
H. *Evaluate work area fire hazards, and review applicable items on hot work permit (if permit in use).*
I. *Complete the training report.*

Identify additional topic(s) and training resources (if any), check the training steps to verify completion, and include the date and location of the training and the supervisor/facilitator name and signature.

BLANK quiz for individual participant completion

PARTICIPANTS NAME – PRINTED *DATE*

1 The lens filter shade required for Shielded Metal Arc Welding (SMAW) with an 1/8" diameter electrode is #
- **a** 14
- **b** 5
- **c** 10
- **d** 2

2 When left unattended, electrodes must be _____ _____ the holder, which must be so placed or protected that it cannot make electrical contact with employees or conducting objects.
- **a** Left in
- **b** Removed from
- **c** Connected to

3 29 CFR Subpart J prohibits repairs and splices in a welding lead within ____ of the electrode holder.
- **a** 10 feet
- **b** 12 inches
- **c** 20 feet

4 Identify the compressed gas cylinder storage requirements.
- **a** Disassemble if not to be used again within 24 hours.
- **b** Store upright and secure against tipping.
- **c** Screw the caps on the valves.
- **d** Separate oxygen and fuel gas (20' or a fire partition).
- **e** All of the above

5 Welding or cutting in a confined space can create significant breathing hazards.
- **a** True
- **b** False

1 La pantalla de filtro de lente necesaria para Shielded Metal Arc soldadura (SMAW) con un electrodo de 1/8" de diámetro es #
- **a** 14
- **b** 5
- **c** 10
- **d** 2

2 Cuando las pinzas de soldadura deben ser dejados sin supervisión, los electrodos _____ ___ _____ y los titulares estarán dispuestos o protegidos que no pueden hacer contacto eléctrico con los empleados u objetos conductores.
- **a** mantener en lugar
- **b** deberán ser retirados
- **c** mantenerse conectado a

3 29 CFR Subparte J - Sólo por cable libre de la reparación o empalmes para una distancia mínima de _____ desde el extremo del cable a la que se utiliza el soporte del electrodo está conectado
- **a** 10 pies
- **b** 12 pulgadas
- **c** 20 pies

4 Identificar los requerimientos de almacenamiento de información de cilindros de gas comprimido.
- **a** Desmontar si no para ser utilizada nuevamente dentro de las 24 horas.
- **b** Conservar en posición vertical y asegúrelos contra vuelcos.
- **c** Atornille las tapas sobre las válvulas
- **d** Gas combustible y oxígeno separado (20 pies o por partición de fuego)
- **e** todo lo anterior

5 Soldadura o corte en espacios confinados puede crear peligros respiratorios significativos.
- **a** Verdadero
- **b** Fals

6 When can the actual oxygen and acetylene cylinders be taken inside of a confined space?
- **a** When there is adequate ventilation
- **b** With approval from a competent person
- **c** When noted on a confined space entry permit
- **d** Never

7 If not stripped back a sufficient distance from the area to be heated, what are some of the hazards that can be created by preservative coatings?
- **a** Toxic vapors
- **b** Coatings that will burn, or give off flammable vapors
- **c** Both A and B

8 Simply emptying a metal drum or other container of flammable liquid will make it safe to apply heat.
- **a** True
- **b** False

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Signature