



Training Solutions, Delivered!

HIGH-IMPACT WELDING SAFETY

(Concise)

**Leader's Guide, Fact Sheet
& Quiz**

Item Number: 3381
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This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation.

PREPARING FOR THE MEETING

Here are a few suggestions for using this program:

- a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.
- b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.
- c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.
- d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the page containing the answers to the quiz comes before the quiz itself, which is on the final page.

CONDUCTING THE PRESENTATION

- a) Begin the meeting by welcoming the participants. Introduce yourself and give each person an opportunity to become acquainted if there are new people joining the training session.
- b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.
- c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.
- d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

3381 HIGH-IMPACT WELDING SAFETY (*Concise*) FACT SHEET

LENGTH: 10 MINUTES

PROGRAM SYNOPSIS:

Welding and cutting are two processes that use either oxygen-enriched fuel flames or an electrical current to fuse metal together or cut it apart. While there are many different combinations of gas, oxygen and metal to get the job done, all of these processes have the same basic hazards. If not handled safely, welding operations can be disastrous and threaten everyone in the plant.

This video uses two welding accident re-creations to illustrate the horrific consequences of unsafe welding procedures. Topics include fire prevention, respiratory protection, equipment inspection and unique hazards associated with arc welding.

PROGRAM OBJECTIVES:

After watching the video, the viewer will be able to identify the following:

- Possible causes of the two accidents and how they could have been prevented;
- Respiratory protection, PPE and clothing necessary for welding;
- Basic safe electrical arc welding procedures.

INSTRUCTIONAL CONTENT:

Sparks and Slag from Welding Operation Ignite Plant-wide Fire

A maintenance man was welding overhead when some sparks and slag were drawn into an air duct that was part of the plant's ventilation system. Some of the sparks also ignited a fire in some combustibles below the worker. When one of his co-workers opened a filter housing door to check for fire, air rushed in and the fire spread rapidly. The fire consumed several buildings and resulted in serious injuries and deaths.

Safety Lessons:

- 1) Be aware of all hazards in your work area; think about the consequences of your actions and the effect they will have on other areas.***
- 2) Always remove or cover combustibles in welding areas.***
- 3) Be sure protective coverings are made of non-combustible materials (not cardboard, as was the case here).***
- 4) Maintain a 35-foot safe zone in all directions from the welding area by removing or covering combustibles.***
- 5) Use a fire watch when required.***

PREVENTING FIRES CAUSED BY WELDING

- A 35-foot safe zone in all directions from the welding area must be maintained by covering all combustibles with non-combustible material or removing them.
- Don't weld on pipes or other conductive materials that pass through walls, partitions, ceilings or roofs.
- Be aware of sparks that can fall through open shafts and elevators or fall onto conveyor systems and ignite fires.
- Workers who serve as fire watches must be trained in the use of fire extinguishers and know how to sound alarms.
- Fire watches must be stationed nearby when anything more than a minor fire could develop within the 35-foot zone.

RESPIRATORY PROTECTION

- The greatest hazard to our health when welding is the fumes and gases from the welding process.
- The fumes and gases from welding processes must be controlled in order to protect against long and short-term respiratory illnesses.
- Metal fume fever is a common illness associated with welding zinc alloys. This can produce a metallic taste in your mouth, fatigue and other influenza-like symptoms.
- Adequate ventilation is always necessary for safe breathing during all welding operations.
- Some welding operations require the use of an approved air-supplied or cartridge type respirator.

PERSONAL PROTECTIVE EQUIPMENT

- Types of PPE available for those who weld are leather gloves, leggings and spats, and leather aprons and sleeves.
- Most welding hoods are designed for interchangeable lenses; check the welding materials container for the manufacturer's lens recommendation.

EQUIPMENT INSPECTION

- Before beginning any gas welding task, be sure to inspect the equipment's condition.
- Maintain a regular check for leaking hoses by spraying them or submerging them in soapy water to determine the location of any leaks.
- Don't attempt to repair faulty hoses, valves or regulators unless you are qualified and authorized to do so.

ELECTRICAL ARC WELDING

- Before using the welding machine, inspect the holder for cracks and other deterioration.
- Make sure the first 10 feet of your welding cable is free of cuts, abrasions and splices.
- When using the welding machine, keep yourself insulated from both the work and the metal electrode with holder. Make sure the frame of the welding unit, whether portable or stationary, is grounded.
- Don't allow the exposed metal part of an electrode or holder to touch wet hands or clothing; never change electrodes with bare hands or when wearing wet gloves.
- Keep welding cables dry and free of grease to prevent the insulation from deteriorating.
- Take precautions to keep welding cables away from power supply cables or high-tension wires.

Using Electric Welder on Wet Floor Results in Worker's Electrocution

A maintenance mechanic was installing a brace he had just made to support a pipe underneath some equipment. The area was wet and he had to lie on his back to get into position to install the brace. He was using an electric welder and had the stinger and rod in his hand as he struggled to get into position. Because his body was contacting the wet floor, he received an electrical shock that caused his muscles to contract. A sudden jerking motion caused him to stick the rod in his eye.

Safety Lessons:

- 1) Don't use an electric welder in a wet environment.***
- 2) Always think about special hazards associated with your work location (such as cramped spaces and moisture).***

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ANSWERS TO THE REVIEW QUIZ

1. c

2. b

3. c

4. b

5. d

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REVIEW QUIZ

The following questions are provided to determine how well you understand the information presented in this program.

Name _____ Date _____

1. A ____ foot safe zone in all directions from the welding area must be maintained by removing or covering all combustibles.
 - a. 15
 - b. 25
 - c. 35
 - d. 50

2. What is the greatest hazard to our health during the welding process?
 - a. The extreme heat produced
 - b. Fumes and gases produced
 - c. The potential for fire
 - d. The potential for electrocution

3. The condition associated with welding zinc alloys that can produce a metallic taste in the mouth, fatigue and influenza-like symptoms is known as _____.
 - a. Arc eye
 - b. Flash burn
 - c. Metal fume fever
 - d. None of the above

4. As long as you know how to weld, you do not have to be trained or authorized to repair faulty hoses, valves or regulators.
 - a. True
 - b. False

5. Before arc welding, check the first _____ of the welding cable for cuts, splices and abrasions.
 - a. 10 inches
 - b. 3 feet
 - c. 5 feet
 - d. 10 feet