Selecting Gloves for Welding and Cutting

INTRODUCTION

Welding gloves of the appropriate material can help protect you from electric shock, flames, hot parts, sharp or flying metal, and arc rays. Proper gloves are the first line of defense against the hand hazards of welding and cutting. ANSI Standard Z49.1 (see Information Sources) requires that all welders and cutters wear protective gloves while working. Different processes may use different gloves. Here are some guidelines for selecting proper gloves for welding and cutting.

NATURE OF THE HAZARD

- Mechanical hazards that cause cuts, scrapes, tears, and punctures.
- Thermal hazards such as heat, flames, hot parts, arc rays, fire, molten metal, spatter, slag, and sparks.
- Electrical hazards due to gloves that are wet, torn, damaged, or have insulation failure.

GLOVE REQUIREMENTS

Gloves should be:

- Dry and moisture resistant.
- In good condition, no holes or tears.
- Flame resistant.
- Comfortable--proper fit and size.
- Electrically and thermally insulated to suit the process.
- Flexible--allow easy movement and full range of motion.
- Made with materials, seams, and edges that do not affect the health or safety of the user.
- Durable, tough, and long lasting.
- Cut, scrape, tear, and puncture resistant.

GLOVE MATERIALS

Many materials are available. Each has properties affecting its performance and use. Here is a list of typical materials and their useful characteristics:

- Cowhide—tough, durable, flame and heat resistant, with good electrical resistance when dry.
- Calfskin—better dexterity than cowhide but not as tough.
- Pigskin—flexible, oil resistant, quick drying.
- Rubber— moisture proof, electrical insulation.
- Treated Cotton—absorbent, lightweight, flexible.
- Aluminized—reflects heat radiation.
- Goatskin—light weight, comfortable, superior dexterity, durable.
- Deerskin—good touch sensitivity.

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- Para-aramid — cut, flame, and heat resistant.

GLOVE DESIGN RECOMMENDATIONS

There are many different styles of gloves. Some protect only the fingers and palms. Others protect the entire hand. Still others protect the wrist and forearm as well. Some gloves have combinations of material, such as cowhide palms and pigskin backs. One pair of gloves may not be suitable for all processes. For example, gloves that are proper for low current Gas Tungsten Arc Welding (GTAW) (thin and flexible) would not be proper for high-current Air Carbon Arc Cutting (CAC-A) (insulated, tough, and durable).

Always use gloves as recommended by the manufacturer. Follow the provided instructions. Improper use may lead to injury if the gloves do not provide the needed protection. Check with your Safety Supervisor or Supplier. Be sure you have the right gloves for the job.

SUMMARY: HOW TO PICK THE RIGHT GLOVES FOR THE JOB

- Know the job.
- Know the process.
- Review the equipment.
- Determine the specific hazards.
- Match the gloves to the needs and hazards of the work.
- For help, ask your supervisor or supplier.

INFORMATION SOURCES

ANSI Z49.1, Safety in Welding, Cutting, and Allied Processes, American National Standards Institute <www.aws.org>.

BSI EN 388, *Protective Gloves against Mechanical Risks*, British Standards Institution, <www.bsi-global.com>.

BSI EN 407, *Protective Gloves against Thermal Risks*, British Standards Institution, <www.bsi-global.com>.

BSI EN 420, *Protective Gloves—General Requirements and Test Methods*, British Standards Institution, <www.bsi-global.com>.

BSI EN 702: *Protective Clothing—Protection against Heat and Flame*, British Standards Institution, <www.bsi-global.com>.

BSI EN 1149-2: *Protective Clothing—Electrostatic Properties*, British Standards Institution, <www.bsi-global.com>.

BSI EN 12477: *Protective Gloves for Welders*, British Standards Institution, <www.bsi-global.com>.

BSI EN 60903: *Live Working - Gloves of Insulating Material,* British Standards Institution, <www.bsi-global.com>.

ISEA 105, *American National Standard for Hand Protection Classification*, International Safety Equipment Association, <www.safetyequipment.org>.

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NFPA 51B, *Standard for Fire Prevention during Welding, Cutting, and Other Hot Work,* National Fire Protection Association, <www.nfpa.org>.

OSHA Title 29, Part 1910Occupational Safety and Health Administration, Code of Federal Regulations, <www.osha.gov>.