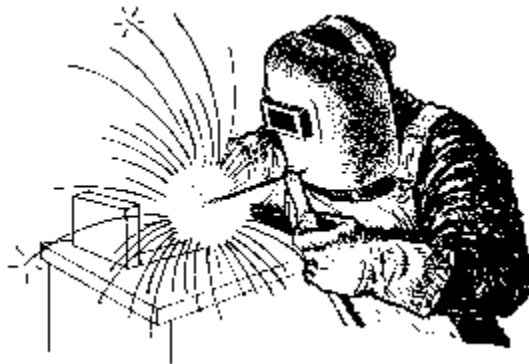


Protecting Workers from Hot Work Fire Hazards

In December 2008 a contractor at Kanawha River Plant suffered severe burns when his 100% cotton coveralls caught fire while he was welding in the boiler. This incident provides an excellent opportunity to remind persons engaged in hot work activities about the use of clothing and work practices that will protect them from burns and fire. The general information presented here applies to welding, burning, and other hot work activities. It is not intended to cover all aspects of hot work safety.

Hazard Assessment

The most important practice is to conduct a thorough assessment of the actual and potential hazards of each specific hot work activity. This requires an onsite inspection of the work location, obtaining “hot work permits” where required, and discussion during the JSA.



Protective Clothing

Protective clothing for welding, burning, and other hot work activities must meet two criteria:

1. Minimal potential for the clothing itself to ignite, burn, and trap hot sparks and slag;
2. Provide sufficient coverage and be made of suitable materials to prevent skin burns caused by sparks, spatter, and radiation.

Choices in protective clothing material include:

1. Flame-retardant (FR) material -- durable, flame-retardant (FR) material that provides spark protection and abrasion resistance.
2. FR Cotton -- relatively light weight and can be laundered a limited number of times without losing its FR characteristics. FR cotton is best for light welding applications.
3. Leather -- can be worn in most welding applications and in all positions, including overhead welding.
4. Natural Fibers -- heavyweight cotton (e.g, denim) or wool. Lightweight cotton or wool should be avoided. *Note: natural fiber materials are combustible and can ignite and generally should be used in combination with other protective materials in all but the lightest hot work applications.*

Types of protective clothing include:

Jackets	Hoods	Spats	Bib Screens
Pants	Sleeves	Chaps	(for backs
Coveralls	Capes	Leggings	of hardhats)
Overalls	Skull	Gloves	
Aprons	Caps		

Proper Use of Protective Clothing

Regardless of the clothing selected, the following safe work practices apply:

- Inspect clothing before use for holes, rips, frays, worn areas, and contaminants.
- Button shirt collars, cuffs, and pockets and avoid pant cuffs to prevent catching sparks and hot material.
- Remove matches, lighters, and other flammable and combustible items from pockets.
- Wear high-top leather shoes or boots.
- Wear pant legs over the tops of footwear to prevent catching sparks and hot material.
- Use leather welding gloves appropriate for the energy level of the hot work activity.
- Protect hair and scalp with a skull cap and ear canals with plugs or muffs.
- Wear clothing that fits. Oversized clothing can catch sparks and hot material.
- Avoid wearing synthetic materials over or under the protective clothing.
- Protective clothing should be kept clean and free of oil, grease, or other contaminants that can accelerate combustion.
- Avoid frayed clothing because it is particularly susceptible to ignition and burning.
- Anticipate and be aware of body positioning that can create folds, exposures, or other conditions in clothing and equipment (e.g., respirators) which can trap sparks and hot material.
- Be mindful that full PPE and winter clothing could slow fire recognition, reaction, and response time.

Note: Sparks and hot materials that are caught in pockets, cuffs, and folds can smolder unnoticed. Depending on the fabric, this can result in igniting of the fabric (especially non-FR natural fiber materials) or holes "burning" through the clothing.

Additional Fire Safety Precautions

Additional precautions to prevent fires include but are not limited to the following:

- Remove combustibles within 35 feet of the hot work. Items that cannot be removed must be protected with fire-resistive covers or shields.
- Use fire-resistive tarps or other materials within 35 feet of hot work to prevent sparks and hot material from falling to lower levels. Ensure tarps overlap to prevent gaps.
- Post trained fire watchers with proper fire fighting equipment (portable extinguishers, water hose, etc.) and maintain for 30 minutes after the hot work activity ends.
- Establish procedures for communicating among the work crew in the event of a fire, including notifying fellow workers, immediate response activities, escape routes, positioning of fire-fighting equipment, etc.
- Hold a debriefing to identify what went well and what could be improved in the future.