

Welding and cutting can produce hazards such as sparks, spatter, radiation, slag, heat, hot metal, fumes and gases, and even electric shock. Since these hazards may cause burns, injury or death, it is important for welders and cutters to wear protective equipment that is adequate for the hazards at all times.

This document is intended to provide guidance to employers and workers regarding the use of adequate fire retardant clothing during welding and cutting processes.

Section 37.9 of the Occupational Health & Safety General Regulations for PEI states:

The employer shall ensure that all employees engaged in welding or cutting operations wear, and all employees shall wear

- (a) Adequate fire retardant work clothing*
- (b) Fire retardant gauntlet type gloves and arm protection*
- (c) An apron of fire retardant or other adequate material*
- (d) Adequate eye and face protection against harmful radiation, or particles of molten metal, or while chipping and grinding welds; and*
- (e) Safety boots which meet the requirements of section 45.15.*

Fire retardant, flame resistant and other types of clothing

Fire Retardant clothing is made from fabric that has a chemical treatment incorporated into a textile fiber or applied to the finished fabric, which reduces or inhibits the garment from igniting in the presence of flame, slag or other hot material. An advantage of fabrics given fire retardant finishes is that the fibers used, (cotton, rayon, wool) are generally more comfortable to wear due to higher moisture absorption. Limitations may include wearing off of chemical protection during the cleaning process, and lowered abrasion resistance and tearing strength.

Flame Resistant clothing is made from fabric that uses manufactured fibers whose generic material makes them naturally flame resistant without a chemical treatment. These fibers have slower flame combustion and self-extinguish when exposed to a flame of short duration during testing. An advantage of inherently flame resistant fibers is that flame resistance is not altered by cleaning and they are generally strong, abrasion resistant fibers. Many of these fabrics have low moisture absorption, so they can potentially be less comfortable in a hot environment and the material has a greater tendency to build up static electricity.

The General Regulations at Section 37.9 above require welders and cutters to wear fire retardant clothing and not flame resistant clothing.

Neither type of garment is “fireproof.” In other words, both types are designed to provide the wearer with more time to remove him or herself from the burning hazard. Additionally, the welder/cutter should consider appropriate clothing to wear underneath the fire retardant protective clothing. Certain heavier natural fabrics, such as cotton and wool, although they will not resist burning, will not melt onto the skin in the presence of flame. On the contrary, synthetic

fabrics such as polyester will melt in the presence of flames, possibly adhering to the skin causing burns (See image in Welding Hazard Alert [here](#)). For this reason, a worker should not wear synthetic fabrics underneath fire retardant protective clothing during welding and cutting processes.

Employer Duties

As stated in section 37.9 of the General Regulations, the employer must ensure the worker who is welding or cutting is wearing **adequate fire retardant work clothing** as well as the other items listed in that section. To determine the most adequate fire retardant clothing for workers, the employer must complete a hazard assessment. The employer should consider the nature of the hazard and duration of exposure to the hazards, such as sparks, spatter, radiation, slag, heat, hot metal. A discussion with a supplier of fire retardant work clothing may help employers in determining the most appropriate garment based on the type of work being performed. Additionally, the employer should ensure the garment is being properly used, stored, cleaned, repaired and/or replaced according to manufacturer's instructions.

Worker Duties

Under section 37.9 of the General Regulations, the worker is required to wear adequate fire retardant work clothing while performing welding or cutting work. Workers need to understand and follow the manufacturer's instructions for the garment to ensure it maintains its fire retardant properties. For example, proper laundering, keeping the garment clean of oil and other flammable residue, storing it properly when not in use, keeping the garment in good repair and having the garment replaced or repaired when there is fraying, rips, tears or buttons/closures missing. The garment should not be cuffed at the arms or legs during wear to prevent sparks and other hot material from lodging in the cuffs. Similarly, any pockets on the garment should be kept buttoned or be removed altogether.

For further information on protective clothing and equipment while welding and cutting, please refer to Section 37.9 of the Occupational Health and Safety Act – General Regulations at www.wcb.pe.ca and CSA Standard W117.2-01, *Safety in Welding, Cutting and Allied Processes*, at www.ohs.csa.ca.

For more information about safe workplaces, visit the Workers Compensation Board website at www.wcb.pe.ca, or contact WCB Occupational Health and Safety at 902-368-5697 or 1-800-237-5049



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