

Written by the Technical Committee of the film and video industry's joint sector-based working group and produced by the Commission de la santé et de la sécurité du travail du Québec.



ASSOCIATION DES
PRODUCTEURS DE
FILMS ET DE
TÉLÉVISION DU
QUÉBEC

Welding and cutting

1. Welding and cutting work must be carried out by a company possessing a certificate from the Canadian Welding Bureau or by people who have received the necessary training.
2. **Before beginning welding or cutting:**
 - clean the surfaces to be cut or welded as well as the surrounding areas;
 - wear fire-resistant cotton clothing, free of oil or grease, and the appropriate protective equipment (gauntlet gloves, safety shoes, glasses or faceshield complying with CAN/CSA Z94.3-M88) for protection against melted metal spatter or against sparks;
 - remove combustible materials and all objects that may cause a fall;
 - inform production crew about hazards to vision caused by electric arcs;
 - protect your eyes against radiation with opaque lenses (nos. 2 to 6 for gas work, and nos. 8 to 14 for arc work);
 - have within reach an approved extinguisher of at least 10 kg for class A, B and C fires;
 - use a friction lighter;
 - remove rings, bracelets and necklaces and put away butane lighters;
 - use screens to protect other people's eyes from the electric arc.
3. Before carrying out welding or cutting work on a container such as a tank, check whether the container has contained hazardous materials. If so, the piping and connections must be disconnected and then plugged. The container must then be cleaned to eliminate all traces of combustible material or material likely to release toxic or flammable vapours when exposed to heat. If a risk of explosion persists, the container must be purged with inert gases.
4. Cylinders of oxygen and combustible gas must be transported in the vertical position, on dollies with pneumatic wheels, and be equipped with their protective caps. They must be firmly secured. They must be stored in the same manner. Also, oxygen cylinders must be at least 6 m away from combustible gas cylinders or separated from them by a screen at least 1.5 m high with a fire-resistance rating of at least one-half hour.
5. **When assembling oxyacetylene welding equipment:**
 - secure the cylinders in the upright position;
 - remove the protective caps using the appropriate tools;
 - use welding equipment that is appropriate for the gases used;
 - replace any damaged equipment;
 - make sure that there are gas check valves and flash arresters on each hose, installed according to the manufacturer's recommendations;
 - open the oxygen valve slightly to eliminate dust and dirt before installing the regulator;
 - stand on the side opposite the regulator when opening the cylinder valve;
 - check all cylinder connections with leak test solution to ensure that they do not leak;
 - purge the air from all hoses before lighting;
 - make sure that the acetylene pressure is below 103 kPa (15 psi);
 - control the direction of the flame and the slag;
 - use a local exhaust ventilation system to prevent contaminants from reaching the welder's breathing zone and to maintain the concentration of contaminants below the permissible limit; if the work is performed outdoors, weld with your back to the wind;
 - anticipate that the object being cut will fall;
 - ensure that no hot or sharp object falls on the hoses;
 - never use oxygen for cleaning (an explosion may result from the oxygen mixing with grease or oil);
 - close the cylinder valves and depressurize the hoses.
6. **With electric arc welding**, in addition to the safety measures listed above, ensure that:
 - the welding generator and the welding machine are stable;
 - the conductors and handle are in good condition;
 - the generator is grounded if a source of 120 or 220 volts is used at the same time as the welding process;
 - the component to be welded is properly grounded;
 - safety glasses are opaque (nos. 8 to 14);
 - no hot or sharp object falls on the wires.

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Acetylene

Acetylene is often used for welding. Like propane, acetylene presents a risk of explosion and fire and may cause asphyxia.

Safety measures

- Perform operations away from all ignition sources.
- Maintain pressure below 103 kPa (15 psi).
- Ventilate confined spaces.



A: Compressed gas



B1: Flammable gas
B2: Flammable liquid
B3: Combustible liquid
B4: Flammable solid
B5: Flammable aerosol
B6: Reactive flammable material



F: Dangerously reactive material

Emergency measures

- In an emergency, close the cylinder valve.
- In the event of inhalation, take the casualty to a well-ventilated area, give him artificial respiration as needed, oxygen if possible, keep him warm and call a doctor.
- In the event of fire, use water, carbon dioxide (CO₂) or dry chemical.

Oxygen

Oxygen accelerates the combustion of other substances. There is a risk of spontaneous combustion when it comes in contact with other substances contaminated by oil or grease.

Safety measures

- Make sure that cylinders of combustible gas (e.g., acetylene) are equipped with a check valve to avoid the possibility of backflow.



A: Compressed gas



C: Oxidizing material

Warning: Never use a jet of oxygen to clean clothing or work areas. It may cause an engulfing fire and serious burns. Remember that water is the best means of extinguishing burning clothing.

References

Regulation respecting occupational health and safety, S-2.1, r. 19.01.

Safety in Welding, Cutting, and Allied Processes (CAN/CSA W117.2-94).

Note. – The information contained in this guideline is not exhaustive and does not replace current standards, laws and regulations.