

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

## Air quality

1. When choosing a filming or recording location, the producer must determine whether there are health risks for the members of the production crew and make the necessary corrections when the air quality does not meet the standards in the *Regulation respecting occupational health and safety*.
  2. If gases, dusts, smoke or vapours are produced during filming or recording, the producer must ensure compliance with the standards relating to concentrations and times in Schedule I of the *Regulation respecting occupational health and safety*.
  3. When the air quality standards cannot be complied with, the producer must supply the members of the production crew with respiratory protective equipment appearing in the *Guide des appareils de protection respiratoire utilisés au Québec*, published by the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST). The producer must also ensure that the personnel use this equipment.
  4. The respiratory protective equipment must be selected, fit, used and maintained in compliance with the standard *Selection, Use and Care of Respirators (CSA Z94.4-93)*. The personnel must inspect the respiratory protective equipment every time that it has to be used.
- ### Use of a smoke or fog effect
5. The call sheet must include a note warning the production crew each time that smoke is to be used on a set. The note must specify the type of smoke and the reason for its use. Also, the people responsible for distributing the respiratory equipment must be designated.
  6. When a smoke or fog effect is produced on a set, the producer or his representative must ensure that only the minimum concentration of the appropriate smoke-producing substance is used to produce the desired effect. Note that no one must ever be exposed to concentrations that exceed the limits indicated on the substance's material safety data sheet.
  7. When smoke is used, the studio must be periodically ventilated, both horizontally and vertically, by mechanical means. Depending on the concentration of the smoke, the producer must ensure that the members of the production crew leave the studio at regular intervals. When smoke is produced indoors in a location other than a studio, the producer or his representative must ensure that the location is well ventilated and that the smoke is exhausted.
  8. The producer must take the necessary precautions to prevent the members of the production crew from inhaling smoke. He must provide the appropriate approved respiratory equipment and ensure that it is used (the type of smoke determines the type of respiratory equipment to be used).
  9. Any person not playing an essential role in the filming or recording must remain off the set. If possible, the dressing rooms, locker rooms, and other areas equipped with the same ventilation system as the set should be cleared.
  10. Propylene glycol and glycerin are the only substances to be used to produce special effects of fog or smoke.
  11. Also permitted, but only in small quantities and for short periods, are:
    - cryogenic gases (solid carbon dioxide or dry ice, and liquid nitrogen);
    - butylene glycol;
    - polyethylene glycol;
    - triethylene glycol.
- This also applies to the propane used to fuel a rig (flame bar), used to simulate a fire. These substances may cause irritation.

**Warning:** Glycols and glycerin products must not be heated beyond the temperature needed to vaporize the liquids. At high temperature, there is a risk of auto-ignition. For example, if triethylene glycol is heated to a temperature close to 370°C (700°F) or higher, there is a risk of explosion.

12. It is prohibited to use a hazardous substance that is not accompanied by a material safety data sheet. This safety data sheet must be consulted before using the product.
13. The following substances must not be used to produce smoke or fog:
- any substance that is a recognized or suspected carcinogen, including tobacco, except for the smoke from the cigarettes of actors who are acting a scene;
  - any substance whose combustion produces substances that are recognized or suspected carcinogens;
  - benzene, fuller's earth, and rubber;
  - fumed and hydrolyzed chlorides (ammonium chloride, zinc chloride and titanium tetrachloride);
  - ethylene glycol and diethylene glycol;
  - mineral-oil-based products;
  - petroleum distillates;
  - charcoal;
  - hexachloroethane and cyclohexylamine.
14. It is prohibited to fuel a propane-powered device with another type of gas such as natural gas.

## References

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

*Guide des appareils de protection respiratoire utilisés au Québec, DC 200-1635 (00-08).*

[www.prot.resp.csst.qc.ca](http://www.prot.resp.csst.qc.ca).

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