

# Actsafes Safety Bulletin #16

## PYROTECHNIC SPECIAL EFFECTS

This Safety Bulletin applies to pyrotechnic materials such as explosives and flammable or combustible liquids, gases and solids when used to create pyrotechnic special effects.

1. ALL USE, HANDLING, STORAGE AND TRANSPORTATION OF PYROTECHNIC MATERIALS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE FEDERAL, PROVINCIAL AND LOCAL LAWS. Approval (including any required licenses and/or permits) shall be obtained from the authorities having jurisdiction prior to using pyrotechnic special effects. Notification shall be made to the appropriate department designated by the production company or studio. That department shall notify others involved including Safety, Fire and/or Special Effects, and obtain approval if required.
2. Special effects personnel must inform the Transportation Coordinator of what pyrotechnic materials, if any, their drivers will be required to transport. Vehicles must be placarded where required by federal and provincial law. All vehicles transporting pyrotechnic materials shall have readily available an inventory of those materials being transported or stored.
3. Prior notification shall be given to personnel, by way of the call sheet, when using pyrotechnic special effects or other special effects employing fire on any set. Also, wherever practical, the call sheet should state the type of pyrotechnic special effects work that is scheduled.
4. Sufficient advance notice must be given to special effects personnel in order to safely plan pyrotechnic special effects. If significant changes are made to these plans, then additional time must be provided to safely accommodate the changes.
5. Special effects personnel must be given sufficient time to safely perform their work (including the transporting, storing, creating, rigging, firing, striking and disposing of all pyrotechnic special effects materials). While handling such materials, they should not be interrupted or distracted from focusing on their work, nor should they be unduly rushed or pressured to hurry.
6. Upon a reasonable and timely request by the Stunt Coordinator, if it is practical, the Pyrotechnics Special Effects Operator shall conduct a test firing of pyrotechnics when such are to be discharged in the vicinity of stunt persons.
7. No performer shall be rigged with any type of pyrotechnic charge of any nature whatsoever except under the direction of a qualified special effects person.
8. If at any time any change becomes necessary, the First Assistant Director will again call all persons involved in the event to another meeting to confirm everyone understands the proposed change(s).
9. Emergency procedures and contingency plans, including the authority to abort, appropriate signs and signals, shall be specified prior to engaging in any pyrotechnic special effects work.
10. The First Assistant Director shall clearly announce to all persons the location of exits, the primary escape route and alternate escape routes. The primary escape route must provide a clear and unobstructed passage to a designated safe area.

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11. Each person should check their designated escape routes in order to assure himself/herself that they are and will remain accessible. Any person who is unsure of their designated escape routes should check with the First Assistant Director and learn of the escape routes upon entering the work area.
12. All placing, preparing and firing of pyrotechnics must be under the direction of a qualified and appropriately certified technician. Only personnel authorized by the pyrotechnic special effects operator in charge shall be in the pyrotechnics area. All other personnel shall remain at a designated safe distance. If needed to prevent unintentional entry into hazardous areas, warning signs should be posted and/or other appropriate precautions taken.
13. Only those minors under the age of 16 whose performance requires them to be on the set when pyrotechnic special effects are being handled are allowed on the set; all other minors shall be off the set and well away from potential danger. In addition, special attention and precautionary measures should be taken to address the safety of minors who are required to perform around pyrotechnic special effects. Some jurisdictions have specific regulations prohibiting minors under the age of 16 from being in close proximity to explosives; it is recommended that the Unit Production Manager has the responsibility to verify that the appropriate regulations have been checked; the regulatory requirements shall be observed.
14. The crew must be notified by the pyrotechnic special effects operator in charge when there is potential for harmful exposure to toxic materials. Personal protective equipment must be provided as appropriate for the hazard(s) involved. All users must have proper training in the use and limitations of this equipment.
15. Appropriate planning for emergency fire suppression equipment and/or personnel must be made prior to pyrotechnic special effects work. Individuals using this equipment must have proper training in its use and limitations. All equipment shall be checked to be sure that is in good operating condition.
16. Smoking is prohibited in all pyrotechnic areas and "No Smoking" signs shall be posted in all areas of the premises or locations where pyrotechnic materials are stored and handled.
17. After each take, no one shall go into the pyrotechnic area other than the pyrotechnic special effects operator in charge, or his designated representative, until it is declared safe.
18. To protect against accidental firing, all electrically fired pyrotechnic devices shall be shunted at all times prior to firing.
19. Power sources for firing pyrotechnic special effects devices shall be restricted to isolated blasting machines or individually isolated, ungrounded generators used for firing purposes only.
  - a. Commercial or house power may only be used providing the firing system is electrically isolated from the commercial or house power through the use of such items as isolation transformers. Under no condition may commercial or house power be used directly for firing purposes.

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20. There should be no radio transmissions in the area where electrically fired pyrotechnic devices are being used. In addition, caution should be taken to avoid extraneous or induced electrical currents from such sources as power lines, radar/microwave transmitters, electrical cable, lightning, static electricity, cellular phones, autotels, etc. Static electricity is especially a problem during periods of low humidity.
21. Intoxicating liquids, narcotics and other controlled substances shall not be used by any person handling pyrotechnic special effects at any time during their transportation, set-up, firing or removal (An exception is made for prescription drugs not impairing the motor functions and judgment of the user).

For information on Explosives certification requirements, visit:  
<http://www.nrcan-rncan.gc.ca/mms-smm/expl-expl/ind-ind-eng.htm>