

Glossary of Pyrotechnic Terms

1.3G Explosives Formerly known as Class B special fireworks. Items classified as 1.3G explosives are display fireworks.

1.4G Explosives Formerly known as Class C common fireworks. Items classified as 1.4G explosives are consumer fireworks intended for use by the general public.

APA Standard 87-1 The Standard for Construction and Approval for Transportation of Fireworks, Novelties, and Theatrical Pyrotechnics.

Aerial Shells A fireworks device designed to be launched into the air for use in a fireworks display.

Aerial Shell A cartridge containing pyrotechnic composition, a burst charge, and an internal time fuse or module, that is propelled into the air from a mortar.

Assistant A person who works under the supervision of the pyrotechnic operator.

American Pyrotechnics Association Trade association for the fireworks industry.

ATF Please See Bureau of Alcohol, Tobacco, and Firearms

Barge Water vessel from which fireworks are discharged.

Barrage A rapidly fired sequence of aerial fireworks.

Battery A collection of fireworks devices, such as a group of mortars (finale battery) or a bundle of roman candles (candle battery,) fused together in such a manner that they are fired within a short period of time.

Black Match A fuse made from string that is impregnated with Black Powder.

Black Powder Material found in fireworks. This material can be used as a propellant charge, to produce sound, as a constituent of other compositions, or in the ignition fuse or timing system of fireworks. Also known as gun powder.

Bouquet Fountains fired in groups.

Break An individual burst from an aerial shell, generally producing either a visual effect (stars) or noise (salute).

Bureau of Alcohol, Tobacco, and Firearms (ATF) Federal agency which regulates the licensing and storage of display fireworks. This agency monitors the importation, manufacture, distribution, and storage of display fireworks.

Cake A chain-fused firework that propels a series of aerial shell, comet or mine effects into the air from collectively attached tubes.

Chain Fusing A series of two or more aerial shells fused to fire in sequence from a single ignition.

Chemical Composition All pyrotechnic and explosive composition contained in a fireworks device. Inert materials (such as clay used for plugs or organic matter used for density) are not considered to be part of chemical composition.

Comet A pellet of composition which is propelled from a mortar or shell and produces a long tailed effect. Large comets are constructed much like aerial display shells, with attached lift charge ready for loading into mortars.

Consumer Fireworks Also known as 1.4G fireworks. Fireworks that are intended for use by the consumer. The permitted usage of consumer fireworks varies by state. Examples are fountains, cones, and firecrackers.

Consumer Product Safety Commission (CPSC) Federal agency which regulates consumer 1.4G fireworks.

Department of Transportation (DOT) Federal agency which controls the transport of all hazardous materials including fireworks. This organization also assigns all legal commercial fireworks with an EX Number.

Discharge Site The area immediately surrounding the fireworks mortars used for an outdoor fireworks display.

Display Fireworks (formerly known as special fireworks) Large fireworks articles designed to produce visible or audible effects for entertainment purposes by combustion, deflagration, or detonation.

Display Site The immediate area where a fireworks display is conducted, including the discharge site, the fallout area, and the required separation distance from mortars to spectator viewing areas, but not spectator viewing areas or vehicle parking areas.

Dud Any device in which the fuse or igniter fails to ignite the main pyrotechnic charge. The term, dud, is reported to have originated as an acronym for dangerous unexploded device.

Electrical Firing Unit A device that provides and controls the electric current used to ignite fireworks during a display.

Electrical Firing Unit, Automatic A panel or box that operates automatically to provide the source of electric current used to ignite electric matches.

Electrical Firing Unit, Handheld A small, handheld unit with manually operated switches that control the flow of electric current to electric matches attached to fireworks devices.

Electrical Firing Unit, Manual A panel or box with manually operated switches that control the flow of electric current to electric matches attached to fireworks devices.

Electrical Ignition A technique used to ignite fireworks using a source of electric current.

Electric Match An electric device that contains a small amount of pyrotechnic material that ignites when current flows through the device.

EX Number The identification number assigned by DOT to a commercial fireworks device. All legal commercial fireworks must have an EX number.

Explosive (Regulatory Definitions)

ATF Any chemical compound, mixture, or device with the primary or common purpose being to function by explosion. The term includes, but is not limited to: dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, electric matches, detonating cords, igniter cords, and igniters.

NFPA The term “explosives” includes any material determined to be within the scope of Title 18, United States Code, Chapter 40, Importation, Manufacture, Distribution, and Storage of Explosive Materials, and also includes any material classified as explosive by the Hazardous Material Regulations of DOT.

Explosive (Technical Definition) Any material that is capable of undergoing a self-contained and self-sustained exothermic chemical reaction at a rate that is sufficient to produce substantial pressures on their surroundings, thus causing physical damage. Explosives fall into 2 classes, detonating and deflagrating.

Explosive Composition Any chemical compound or mixture, the primary purpose of which is to function by explosion, producing an audible effect.

Fallout Area The designated area in which hazardous debris is intended to fall after a pyrotechnic device is fired.

Finale A rapidly fired sequence (barrage) of aerial fireworks, typically fired at the end of a display.

Fire (verb) To ignite pyrotechnics by using an electric match, electrical current, or some other means.

Firing Technician Individual who actually ignites fireworks devices at a show.

Fireworks Any composition or device for the purpose of producing a visible or an audible effect by combustion, deflagration, or detonation, and that meets the definition of consumer fireworks or display fireworks.

Fireworks Display A presentation of fireworks for a public or private gathering.

Fusee A highway distress flare, sometimes used to ignite fireworks at outdoor fireworks displays.

Flash Powder Mixtures which contain powdered aluminum or a magnesium/aluminum alloy which, when ignited, can result in a violent explosion and flash.

Fountain Device that projects a spray of sparks.

Gerb Small fountain sometimes used with lance-work set pieces.

Girandola Special wheel which rises rapidly in the air while emitting a spray of sparks and, sometimes, a whistle.

Ground Display Piece A pyrotechnic device that functions on the ground (as opposed to an aerial shell that functions in the air) and that includes fountains, wheels, and set pieces.

Gun Powder See Black Powder

Hangfire A fuse or pyrotechnic ignition composition which continues to glow or burn slowly instead of burning at its normal speed. Such a fuse may suddenly resume burning at its normal rate after a long delay. If the hangfire goes completely out (is extinguished), it is termed a misfire.

Hazardous Debris Any debris produced or expelled by the functioning of a pyrotechnic device that is capable of causing personal injury or unpredicted property damage.

High Level Fireworks Devices propelled into the air, usually aerial shells.

Igniter Also known as an electric match. A device used for the electrical ignition of fireworks and pyrotechnic articles.

Instantaneous Fuse Also known as Quickmatch. Black match that is encased in a loose-fitting paper or plastic sheath to make it burn extremely rapidly. Quickmatch is used for aerial shells and simultaneous ignition of a number of pyrotechnic devices such as lances in a ground display piece.

Illegal Explosives Usually unlabelled, these devices exceed the federal maximum explosive charge allowed. Some examples are M-80s, M-100s, and silver salutes. These devices are extremely dangerous and should be avoided. Some members of the public and media incorrectly refer to these devices as fireworks.

Labels All legal consumer explosives have mandatory labeling requirements. Included on these labels should be the manufacturer's name and address, cautions, and directions for use.

Lance A thin cardboard tube packed with color-producing pyrotechnic composition used to construct ground display pieces.

Lift Charge The composition that propels (lifts) the pyrotechnic device into the air.

Loader(s) An assistant(s) who loads or reloads aerial shells, comets, or mines into mortars.

Low Level Fireworks (Also Ground-to-Air Fireworks) Any of a class of fireworks devices that either perform below approximately 200 feet (60 m) or begin their display at ground level and rise to complete their effect. Some examples of low level fireworks are comets, mines, roman candles, and many consumer fireworks.

Manual Ignition A technique used to ignite fireworks using a handheld ignition source such as a fusee or portfire.

Mine A device containing multiple pyrotechnic effects that are simultaneously ignited and dispersed into the air from mortar or tube.

Monitor The individual at a fireworks display responsible for observing the perimeter of the firing site and insuring that security personnel or barriers keep spectators at a safe distance. Usually provided by the organization sponsoring the event.

Mortar A tube from which certain aerial devices are fired into the air.

Mortar Rack Sturdy wooden or metal frames used to support mortars in an upright position usually above ground.

Mortar Trough Above ground structure filled with sand or similar material into which mortars are positioned.

National Fire Protection Association (NFPA) Organization which provides several standards that outline recommendations for the manufacture, storage, transportation, and execution of fireworks.

NFPA Standard 1123 *Code for Fireworks Display*

NFPA Standard 1124 *Code for the Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles*

NFPA Standard 1126 *Standard for the Use of Pyrotechnics Before a Proximate Audience*

[National Council on Fireworks Safety](#) A non-profit group that promotes the safe enjoyment of consumer fireworks.

Novelty A device containing small amounts of pyrotechnic and/or explosive composition but does not fall under the category of consumer fireworks. Such devices produce limited visible or audible effects. Examples are snakes, tanks, poppers, and snappers.

Occupational Safety and Health Administration (OSHA) Federal agency that inspects fireworks manufacturing plants. OSHA not only regulates non-fireworks specific aspects of plant safety (i.e. housekeeping, electrical requirements, employee training), but also the fireworks-related standards of NFPA Standard 1124.

Operator The person with overall responsibility for the operation and safety of a fireworks display. The operator is also responsible for storing, setting up, and removing pyrotechnic materials or devices after a performance.

Placard Warning symbol of a square-on-point configuration mounted on each side and each end of a truck, rail car, or freight container which informs the public and emergency personnel of the hazardous nature of cargo, as specified in 49 CFR, § 172.

Portfire A long tube containing slow-burning pyrotechnic composition that is sometimes used to ignite fireworks at outdoor fireworks displays.

Proximate Audience An audience that is closer to pyrotechnic devices than allowed by the NFPA 1123, Code for the Outdoor Display of Fireworks.

Pyrotechnic Device Any device containing pyrotechnic materials and capable of producing a special effect.

Pyrotechnic Material A chemical mixture used in the entertainment industry to produce visible or audible effects by combustion, deflagration, or detonation.

Pyrotechnic Special Effect A special effect created through the use of pyrotechnic materials and devices.

Pyrotechnics Controlled exothermic chemical reactions that are timed to create the effects of heat, gas, sound, dispersion of aerosols, emission of visible electromagnetic radiation, or a combination of these effects to provide the maximum effect from the least volume.

Quickmatch Also known as an Instantaneous Fuse. Black match that is encased in a loose-fitting paper or plastic sheath to make it burn extremely rapidly. Quick match is used for aerial shells and for simultaneous ignition of a number of pyrotechnic devices, such as lances in a ground display piece.

Ready Box A storage container for aerial devices for use during set-up and display.

Ready Box Tender Assistant who controls and dispenses the contents of ready box(es) during a fireworks display.

Report A component of an aerial display shell or mine. A report contains salute powder, a powerful pyrotechnic composition (usually flash powder) which explodes violently, producing a loud noise with the visual effect of a bright flash and smoke.

Roman Candle A chain-fused firework that propels a series of aerial shell, comet or mine effects into the air from a single tube.

Safety Cap A tube, closed at one end that is placed over the end of the fuse until intended ignition to protect it from damage and accidental ignition.

Salute Fireworks designed to produce an explosive sound as its primary effect.

Aerial Salute A salute that functions as an aerial shell.

Ground Salute A salute that functions from a stationary or secured position.

Salute Powder A pyrotechnic composition that makes an explosive sound when ignited and constitutes the sole pyrotechnic effect of a salute.

Set Piece A ground display such as lancework, wheels, gerbs, fountains, and/or other devices, which function while on poles, frames, or other structures, attached to the ground.

Site Plan Sketch or map of the fireworks display site or of the area of a performance using pyrotechnic special effects.

Sponsor The organization (person, group, or government agency) that arranges with a duly authorized fireworks supplier for its services in presenting a fireworks display or in providing fireworks for use in a display.

Spotter A member of the fireworks display crew (either the operator or an assistant) who observes the firing and bursting of aerial shells and other display fireworks for the purpose of detecting proper mortar angling, noting the occurrence of duds, and observing for other potentially hazardous situations.

Stars Fireworks materials that are compressed into small cubes or round pellets.

Supply Tender Individual at a fireworks display who controls all product. This person ensures that shells are dispersed only as they are needed.

Theatrical Pyrotechnics Pyrotechnic devices for professional use in the entertainment industry. Similar to consumer fireworks in chemical composition and construction but not intended for consumer use.