Glossary

From the PGI Display Operator Certification Study Guide

TERM	SOURCE	DEFINITION.
# Break.	Effect	The number of breaks in an ærial shell.
# Shot.	Effect	The number of shots in a multishot device.
# Timed reports.	Effect	A special multiple break shell with timed reports.
_ Glitter.	Effect	A shinier brighter glittering color.
_ Magnesium.	Effect	An intensely brighter color.
_ Strobe.	Effect	An intensely brighter strobing color.
1.3G (was Class B).	PGI	Any quantity requires CDL and placarding, i.e., ærial shells, comets, etc.: display fireworks.
1.4G (was Class C).	PGI	1,001+ lbs. requires CDL and placarding. Example: Inserts, comet racks, quick match, etc. This class now includes most Consumer Fireworks.
Aerial Shell.	PGI	Generally a cylindrical or spherical projectile containing stars or other effects, quickmatch, time fuse, and a lift charge.
Alternating Current (AC).	1126	An electrical current that reverses direction in a circuit at regular intervals. Almost all electrical current supplied from wall outlets or sockets is alternating current.

American Pyrotechnics Association (APA)	PGI.	The trade association for the fireworks industry.
Approved.	1123	Acceptable to the authority having jurisdiction. The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization concerned with product evaluations that is in a position to determine compliance with appropriate standards for the current production of listed items.
Approved.	1126	Acceptable to the authority having jurisdiction.
Aqua (Aquamarine).	Color	A light, bright bluish green.
Artillery.	Effect	An ærial shell made up of reports, often timed.
Assistant.	PGI	Any individual present at a firing site during a display and having specific tasks or responsibilities, for example, loaders and magazine tenders qualify as assistants. Minimum age is 18.
Assorted.	Color	Different colors. Not the same as variegated.
Audience.	1126, 1123	Spectators whose primary purpose is to view a performance.
Authority Having Jurisdiction.	1123, 1124, & 1126	The organization, office, or individual responsible for approving equipment, an installation, or a procedure. The phrase "authority having jurisdiction" is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the

authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

Automatic Electrical
Firing Unit.

1123

A panel or box that operates automatically to provide the source of electric current used to ignite electric matches. The unit is attached by wires or cables to junctions that are connected to the electric matches, which, in turn, are attached to fireworks devices. Automatic units often are operated by magnetic tape or by computer.

Bare Match.

PGI

The same as Black Match. A short section is bare on quick match and is the ignition fuse for many fireworks.

Barrage.

1123

A rapidly fired sequence of ærial fireworks. Mortars are loaded prior to the display, and the ærial shells are chain fused to fire in rapid sequence.

Battery.

1123

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. This term is not to be confused with an electrical battery used to provide a source of current.

Binary flash powder

PGI

A proximate pyrotechnic material that is mixed on site for immediate use. Binary flash powders are

used to make airbursts, in flash pots, puff pots and sparkle pots and in concussion mortars. Each type of binary flash powder is used to create specific effects based upon the type of binary flash powder and the type of device and/or configuration it is used in. See also theatrical flashpowder.

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Binary Materials.	1126	See Binary System.
Binary System.	1126	A two-component pyrotechnic system. These items are shipped as separate ingredients: an oxidizer and a fuel. The ingredients do not become a pyrotechnic material until they are mixed. For the purposes of this standard, the supplier of such ingredients shall be considered the manufacturer.
Black Match.	1123	A fuse made from string that is impregnated with black powder and used for igniting pyrotechnic devices.
Black Powder.	PGI	An intimate mixture of finely powdered potassium nitrate, sulfur and charcoal. Commercial black powder may be granular or finely powdered. It serves as a propellant and in a wide variety of other uses in fireworks. It should not confused with smokeless powder, which is not suitable for use in fireworks. Also unsuitable for use as a propellant in fireworks is Pyrodex, which is a black powder substitute in antique firearms, and has properties different than black powder.
Blank Cartridge.	1126	A cartridge constructed from a cartridge case equipped with a percussion primer and filled with various loads of smokeless powder or other propellant. Weapons using blank cartridges often are used in conjunction with bullet hits.
Blow-by.	PGI	The release of gasses from a functioning lift charge by an ærial effect in a mortar rather than underneath the ærial shell. The result of too much blow-by is usually a low break, muzzle break or flowerpot.
Blue.	Color	Varies from soft aquamarine to a bright metallic

blue.

Bombardo board.	Effect	The Canadian equivalent to a comet rack.
Bombette.	Effect	Small shells or reports that perform in rapid sequence.
Bottom Fused Shell.	PGI	An ærial shell in which the time fuse is positioned on the bottom of the shell where it is ignited directly by the lift charge.
Break.	PGI, 1123	An individual burst from an ærial shell, generally either producing a visual effect (stars) or noise (salute). Aerial shells can be either single-break (having only one burst) or multi-break (having two or more bursts).
Bridgewire.	1126	A fine wire that either heats up or explodes when an electric current is applied. It is used to fire pyrotechnic devices.
Brocade.	Effect	A lace-style of effect.
Buckets.	PGI	The connections to fireworks in chains.
Bullet Hit.	1126	A small explosive charge attached to a person's clothing or body, or to an inanimate object, to simulate a slug from a weapon as it strikes a person or object.
Bundle match.	PGI	See Quickmatch.
Bureau of Alcohol, Tobacco, Firearms and Explosives (ATFE)	PGI	The federal bureau with primary responsibility for regulatory compliance and enforcement of laws relating to the manufacture, storage and use of explosives in the U.S. ATFE has 3 primary designations for explosives: high explosives, low explosives and blasting agents. All display fireworks and proximate pyrotechnics are low explosives and thus need to be stored in a Type 4 magazine. The only exception is flash powder or bulk salutes when there is 1 pound or more. These articles are now considered to be high explosives and need to be in a Type 2 magazine, unless they are

mixed in with star shells.

As of May 24, 2003, this agency has moved to the Department of Justice and is known as ATFE (the Bureau of Alcohol, Tobacco, Firearms and Explosives).

Cake. Effect A type of multishot device. Cakes are given this

nickname because they are similar in appearance to a

"birthday cake."

Canister. Style A shape of the ærial shell. Most Italian-American

style effects shells are canister as opposed to round.

Cannon fuse. PGI See also safety fuse.

Chain Fused. PGI A series of two or more ærial shells or other fire-

works items fused so as to fire in sequence from a single ignition. Finales and barrages are typically

chain fused.

Chains. PGI Quickmatch with connections or buckets at preset

intervals for installing leaders from ærial shells.

Charcoal. Color Orange and often the base for other colors.

Chrysanthemum Shell. PGI A spherical hard-breaking shell, in which the stars

leave burning particles in their trajectories and therefore produce a tail. Chrysanthemums produce

distinctive patterns in the sky.

Class B Fireworks. PGI See Display Fireworks.

Class C Fireworks. PGI See Common Fireworks.

Clean-Out Tool. PGI A long stick, dowel, or pole having several nails driv-

en at various angles on one end. It is used to remove paper and other debris from mortars when neces-

sary.

Coconut. Effect Palm-tree type effect.

Code. PGI A fire code. Some fire codes are adopted by state

or local governments and have the same effect as being a law or regulation. Others are used as reference for inspections, approvals and enforcement with the framework of laws mandating public safety provisions. There are a number of different fire codes such as the NFPA National Fire Code® the Uniform Fire Code (UFC) and others. Each state adopts or recognizes them based on what it believes to be in its best interests.

Effect Color Changing. The stars change from one color to another.

Color Pot. 1126 A tube containing pyrotechnic materials. It produc-

es a colored flame when ignited.

Color. Color A single basic color such as red, blue, green, white,

Colored Smoke. 1126 An aerosol of special dyestuffs of chemical reactants

dispersed by pyrotechnic heat or explosion.

Comet rack. Style A small board or rack with pre-loaded, chained

comets.

Comet. PGI Generally a large pellet of composition which is pro-

> pelled from a mortar or shell and usually is designed to produce a long tailed effect. Comets may or may not burst at their zenith. Large comets, or comets fastened to shells are sometimes referred to as "stickless rocket" because of the similarity of their effects, although not similar in their design. Bursting com-

ets are sometimes called crossette comets.

PGI Commercial Drivers Required license for all drivers of commercial vehicles.

License (CDL).

Common Fireworks. **PGI** a.k.a. Class C Fireworks. Those small firework

> items intended for personal use and which can be purchased over-the-counter in many states. These items include small fountains, small ærial shells, sparklers, firecrackers, and small rockets. These items are defined by the US Department of Trans-

portation as being Class C explosives.

PGI Component Shell. Any shell containing numerous small devices other

than stars. These include whistles, tourbillions (small tubes that spin like small wheels), serpents

(small rocketlike devices that jet about in the air), shell-of-shells (small shells that explode after the initial explosion of the main shell). Component shells are likely to produce more fallout than other kinds of shells and the fallout may contain live devices. Component shells are also called "special shells" or "specials."

		"specials."
Composition.	PGI	The mixture of chemical ingredients in a device or a component of a device.
Concussion Effect.	1126	A pyrotechnic effect that produces a loud noise and a violent jarring shock for dramatic effect.
Concussion Flashpowder.	1126	Flashpowder intended to be used in a concussion mortar to produce a loud concussive effect.
Concussion Mortar.	PGI	An extremely heavy-walled steel tube with a small interior diameter securely welded to a steel plate. It is designed for use with binary concussion flash powder to create an extremely loud report.
Consumer Fireworks (formerly known as "Common Fireworks").	1123	Small fireworks devices containing restricted amounts of pyrotechnic composition, designed primarily to produce visible or audible effects by combustion, that comply with the construction, chemical composition, and labeling regulations of the U.S. Consumer Product Safety Commission (CPSC), as set forth in CPSC 16 CFR 1500 and 1507, 49 CFR 172 and APA 87-1, Standard for the Construction and Approval for Transportation of Fireworks, Novelties and Theatrical Pyrotechnics. (1124-2017) NFPA-1123-2018, 3.3.15.1
Crackling.	Effect	Stars that crackle as they function.
Crossette Comet.	PGI	See Comet.
Crossette.	Effect	Stars that split across each other, a.k.a. split comets.

Crossmatch.

PGI Bare match that goes through the central blackpowder train of time fuse for reliable fire transfer.

Crowd Control.

PGI An authoritative and organized effort to prevent the general public and unauthorized persons from entering designated areas before, during and after the shooting of a public display.

Crown. Effect A crown shape, usually golden.

Cyan. Color A light blue, "powder blue" or "Garter blue."

Dahlia. Effect Brightly colored stars that fall from the break.

Day Box. 1126 A portable magazine used for the immediate storage of pyrotechnics.

Deflagration. 1126 A rapid chemical reaction in which the output of

heat is sufficient to enable the reaction to continue and accelerate without input of heat from another source. Deflagration is primarily a surface phenomenon, with most reaction products flowing away from the unreacted material along the surface at less than supersonic velocity. The effect of a deflagration under confinement is an explosion. Confinement of the reaction increases pressure, rate of reaction, and temperature and, in some cases, can cause transition into a detonation.

Det Cord. 1126 A flexible detonating cord. It is a highly explosive

material encased in a plastic-covered cord resem-

bling a clothesline.

Detonation. PGI A powerful and loud explosion which may occur

inside a mortar and in which the entire pyrotechnic contents (or nearly the entire contents) of a device are consumed instantaneously. Little or no visible burning material leaves the mortar because the compositions are totally destroyed in the explosion. A detonation usually damages the mortar and may change the position of adjacent mortars. Several

causes are possible, including the use of unsafe composition in stars, and poorly designed or constructed shells. Detonations may also occur in mines, certain kinds of comets and other types of fireworks. The term "detonate" should not be used to mean "ignite." Note that shell detonations probably do not meet the technical definition for a true detonation; none-theless, it is common in the display industry to refer to strong deflagrations as detonations.

Detonation. 1126

An extremely rapid chemical reaction in which the pressure generated is sufficient to cause the formation of a shock wave, which causes the reaction to continue. Detonation is a phenomenon with reaction products flowing in the direction of unreacted materials at supersonic velocity. The effect of a detonation with or without confinement is an explosion.

Detonator. 1126

Any device containing an initiating or primary explosive that is used for initiating detonation. The term includes, but is not limited to, electric blasting caps (instantaneous and delay types), blasting caps for use with safety fuses, detonating cord delay connectors, and nonelectric caps that use a detonating cord, shock tube, or any other replacement for electric legwires. A detonator also could be an explosive or device initiated by a primer and used to initiate another explosive that is less sensitive and larger.

Diadem. Effect

A large chrysanthemum with a willow effect.

Direct Current (DC). 1126

An electrical current that flows in one direction. Most frequently, direct current is supplied by a battery.

Discharge Site. PGI

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

Display Fireworks 1126 (formerly known as "Special Fireworks"). Large fireworks articles designed to produce visible or audible effects for entertainment purposes by combustion, deflagration, or detonation. This term

includes, but is not limited to, salutes containing more than 130 mg (2 grains) of explosive composition (salute powder), ærial shells containing more than 60 g (2.1 oz) of total pyrotechnic and explosive composition, and other display pieces that exceed the limit for classification as consumer fireworks. Display fireworks are described as Fireworks UN0335 and classed as Explosives 1.3G by the U.S. Department of Transportation.

Display Fireworks.

1123

Large fireworks devices that are explosive materials intended for use in fireworks displays and designed to produce visible or audible effects by combustion, deflagration or detonation, as set forth in 27 CFR 555, 49 CFR 172, and APA 87-1, Standard for the Construction and Approval for Transportation of Fireworks, Novelties, and Theatrical Pyrotechnics. (1124-2017) NFPA-1123-2018, 3.3.1.5.2

Display Operator.

PGI

A pyrotechnist with overall responsibility for the safe set-up, performance and cleanup after a fireworks display. The display operator will normally have a number of assistants. Minimum age is 21.

Display Site.

1123

The immediate area where a fireworks display is conducted. This includes the discharge site, the fallout area, and the required separation distance from mortars to spectator viewing areas. The display site does not include spectator viewing areas or vehicle parking areas.

DOT Classifications.

PGI

The DOT designations for specific hazardous materials that have been approved for transportation in, into and through the United States.

Double Bubble.

Effect

Two round shells assembled to fire together from one mortar, a.k.a. peanut shells.

Driver.

PGI

A strong paper case with a nozzle or choke. The case is charged with a fierce-burning composition and is used to propel wheels or other mechanical devices. Drivers are sometimes called "wheel pushers" or "pushers."

Dud.	PGI	A shell which leaves the mortar but fails to break (burst) while in the air and falls to the ground. It may explode upon hitting the ground, or thereafter. Also, any fireworks devices in which the fuse fails to ignite the main pyrotechnic charge (contrast with "misfire").
Electrical Firing Junction.	1123	A box or slat, connected by wire or cable to the firing unit, that contains electrical connectors that are intended to be attached to electric matches.
Electrical Firing Unit.	1123	A device that provides and controls the electric current used to ignite fireworks. A firing unit normally has switches to control the routing of the current to the devices to be used during the display and also might contain test circuits and warning indicators. Units can be manual, automatic, or handheld.
Electrical Ignition.	PGI	A technique used to discharge fireworks in which an electric match and source of electric current are used to ignite fuses or lift charges. The electric matches are attached prior to the display, generally with wires connected to an electrical firing unit during the display. The operator or an assistant ignites the fireworks from the electrical firing unit during the display.
Electrical Isolation.	1126	See Isolated Power Supply.
Electric Match.	PGI	Special coated wires used to ignite fireworks. These used to be called "squibs," but squibs are devices used in blasting.
Electric Match.	1123	A device consisting of wires terminating at a relatively high-resistance element surrounded by a small quantity of heat-sensitive pyrotechnic composition. When a sufficient electric current is passed through the wire circuit, the heat that is generated ignites the pyrotechnic composition, producing a small burst of flame. This flame can be used to ignite a fuse or a lift charge in a fireworks device. For the purposes of this code, the term electric match also refers to other

1126

similar technologies in which an electric current is used to produce a high temperature for ignition purposes.

Explosion.

The rapid production of hot gases at a high pressure as the result of a chemical reaction and the sudden release of the energy to cause strong dynamic stresses in the surroundings. The term usually refers to the effects of a detonation of initiating explosives and high explosives but also applies to the effect of a deflagrating propellant explosive in certain circumstances such as heavy confinement. The term also describes a mechanical phenomenon in which failure of the container results in a sudden release of pressure from within a vessel.

Explosive Number (EX#). PGI

The number assigned by the DOT to each manufacturer for each explosive device it manufactures and ships.

Explosive Special Effect. 1126

See Pyrotechnic Special Effect.

Explosive. 1126

Any chemical compound, mixture, or device whose primary or common purpose is to function by explosion. The term includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cords, igniter cords, and igniters. 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 1.1, 1.2, or 1.3 by the Hazardous Materials Regulations of the U.S. Department of Transportation.

Falling flowers.

Effect Small color stars that fall when the shell breaks.

Fallout Area. 1123

The area over which ærial shells are fired. The shells burst over the area, and unsafe debris and malfunctioning ærial shells fall into this area. The fallout area is the location where a typical ærial shell dud falls to the ground depending on the wind and the

		angle of mortar placement. The fallout area does NOT include areas where harmless cardboard and nonhazardous remnants of shells or devices might fall to the ground.
Fallout Radius.	1126	A line that defines the fallout area of a pyrotechnic device. The line is defined by two points. The first point is at the center of a pyrotechnic device. The second point is the point most distant from the center of the pyrotechnic device at which any hazardous debris from the device can fall.
Fan cake.	Effect	A cake with tubes at angles so the effects look like an open fan in the sky.
Finale box.	Effect	A multishot device in which many ærial shells are chained together for rapid firing.
Finale chain.	Effect	A group of ærial shells fused together into a chain for rapid, sequential firing.
Finale.	PGI	The fireworks designated to be fired at the end of a display. By tradition, this is usually an especially spectacular assemblage of devices and is usually chain-fused to fire in a short period of time.
Fire (<i>v</i> .).	1123	To ignite fireworks by using an electric match, fusee, torch, portfire or some other means.
Fire (v.).	1126	To ignite pyrotechnics by using an electric match, electrical current, or some other means.
Fire Resistive.	1123	Material or structure with design features or properties that enable it to resist or withstand any fire to which it can expect to be subjected.
Firework.	1126	Any device containing chemical elements and/ or compounds capable of burning independent of atmospheric oxygen and producing audible, mechanical, thermal or visual effects when ignited.
Fireworks Display.	1123	A presentation of fireworks for a public or private gathering.

Fireworks.	1123	Any composition or device for the purpose of producing a visible or an audible effect for entertainment purposes by combustion, deflagration, or detonation that meets the definition of "Consumer Fireworks" or "Display Fireworks" as set forth in this code. Exception No. 1. Toy caps for use in toy pistols, toy canes or toy guns, and novelties and trick noisemakers as enumerated in Annex D of this code are not considered to be fireworks. Exception No. 2: Model rockets and model rocket motors designed, sold, and used for the purpose of propelling recoverable aero models are not considered to be fireworks. (See NFPA 1122, Code for Model Rocketry.). Exception No. 3: High power rockets addressed in Codes NFPA-1125 and 1127.
Firing System.	1126	The source of ignition for pyrotechnics. In an electrical system, it is the source of electric current used to initiate electric matches or other devices. Generally, the electrical firing system has components, such as a primary key switch, test circuits, warning indicators, cables, isolation transformers, and switches to control the routing of the current to various pyrotechnics.
First Fire.	1126	The ignited mixture used with pyrotechnic devices and loaded in direct contact with the main pyrotechnic charge. A pyrotechnic first-fire mixture is compounded to produce a high temperature and hot slag. The mixture is readily ignitable and capable of igniting the underlying pyrotechnic charge.
Fixed Production.	1126	Any production performed repeatedly in only one geographic location.
Flare.	1126	A pyrotechnic device designed to produce a single source of intense light for a defined period of time.
Flash Pot.	1126	A device used with flashpowder that produces a flash of light and is capable of directing the flash in an upward direction.

Flash Powder.

PGI Explosive composition intended for use in firecrackers and salutes. Flash powder produces an audible report and a flash of light when ignited.

Flight. Effect A small group of effects fired on one cue or rapidly.

Flowerpot PGI A malfunctioning shell which bursts within the

mortar, producing a shower of ignited stars and other effects Flowerpots have numerous possible causes, the most common being a fire leak into the shell, a weak or damaged shell casing resulting in the shell breaking apart from the force of the lift, or from ignition of stars resulting from friction between adjacent stars within the shell (contrast

with "mine").

Flowers. Effect Small color flowers sometimes used as a tail effect.

Fountain. PGI Identical to a gerb except that fountains usually

have wooden or plastic bases and are designed to be placed on the ground instead of being fastened to a

set piece.

Front. Effect A small group of effects fired on one cue or rapidly

along the front of the display.

Fuel. 1126 In pyrotechnics, anything combustible or acting as

a chemical reducing agent such as, but not limited to, sulfur; aluminum powder; iron powder; charcoal; magnesium; gums; and organic plastic binders. Fuels

are an ingredient of pyrotechnic materials.

Fuse, Chinese. PGI Other types of fuses in common use are Chinese

twisted paper fuse and powder impregnated cotton cord which may or may not be covered with paper.

cord which may or may not be covered with paper.

Fuse, Igniter Cord. PGI Another kind of fuse in common use is called Ignit-

er Cord. It consists of an incendiary composition and a plasticizer which is extruded onto a flexible wire. This kind of fuse is used for timing and multiple ignitions. It is manufactured to burn at various

burn rates. See also Blackmatch and Quickmatch.

Fuse, Visco	PGI	Visco fuse is the familiar woven cotton fuse which has a core of black powder and coat of nitrocellulose lacquer (usually green or red). Important note: In virtually all woven type fuses, the fire front may proceed the area of visible burning, sometimes by a much as an inch or more.
Fuse.	PGI	Any system (in pyrotechnics, usually an enclosed powder train) used to delay the ignition of the main fireworks device. Many different kinds are in common use. Fireworks time fuse (sometimes called Bickford fuse) is a difficult (accidentally or unintentionally) to ignite, slow-burning fuse used in shells to provide the delay between lift charge ignition and shell burst. It is also occasionally used for delaying the ignition of set pieces. It consists of a core of composition covered with woven cotton fibers with layers of paper and usually some waterproofing material, typically asphaltum.
Fusee.	PGI	A long-burning flare, usually red, commercially used as a railroad and highway warning light, but which also may be used to ignite fireworks.
Gamboge.	Effect	Fine gold to orange-tailed chrysanthemum star effect.
Gerb.	PGI	A device consisting of a heavy tube solidly filled with composition and usually having a choke or restricted orifice. When ignited, it releases a jet or broad spray of fire and/or sparks. It is used on set pieces.
Gerb.	1126	A cylindrical preload intended to produce a controlled spray of sparks with a reproducible and predictable duration, height, and diameter.
Gold Tremalon.	Color	Gold strobing or heavy gold glittering cloud effect.
Gold.	Color	Often charcoal based.
Grain Powder.	PGI	Granulated black powder, usually used to propel
Grid rocket	PGI	ærial shells into the air. See line rocket.

Green.	Color	Varies from soft pastels to emerald bright.
Ground Burst.	PGI	See Low Burst.
Ground Display Piece.	1123	A pyrotechnic device that functions on the ground (as opposed to an ærial shell that functions in the air). Typical ground display pieces include fountains, roman candles, wheels, and "set pieces."
Ground Piece.	PGI	See Set Piece.
Gun Powder.	PGI	See Black Powder (preferred terminology).
Guy Wire.	PGI	Rope, wire or similar material used to steady or guide set pieces or finale racks.
Half & Half	Effect	A flower with half one color and half another.
Hand-Held Electrical Firing Unit.	1123	A small, hand-held unit with manually operated switches that control the flow of electric current to electric matches attached to fireworks devices. The unit is connected directly to the electric matches by means of wires.
Hangfire.	PGI	A fuse 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 with dangerous consequences.
Hazardous Debris.	1123	Any debris produced or expelled by the functioning of a pyrotechnic device that is capable of causing personal injury or unpredicted property damage. This includes, but is not limited to, hot sparks, heavy casing fragments, and unignited components. Confetti, light-weight foam pieces, feathers, novelties, etc., are not to be construed as hazardous debris.
Hazardous Material.	PGI	Any materials classified under 49 CFR as hazardous in minimum quantities.
Heading.	PGI	The portion of a rocket which is dispersed at the zenith of its flight, usually consisting of stars, salutes, or special effects.

Heavy report.	Effect	The final very loud report in a multiple break.
High explosive.	PGI	The ATF classification for detonating explosives. Includes dynamite, TNT, and "bulk" salutes.
Holder.	1126	Any device used to hold a pyrotechnic device other than a mortar. The purpose of a holder is to maintain the position of a pyrotechnic device. Holders hold preloads, which are self-contained. A holder is not to be construed to be a mortar.
Hummer.	Effect	Effects that whiz with a humming sound.
Igniter.	1126	An electrical, chemical, or mechanical device normally used to fire pyrotechnics.
Ingredient.	1126	A chemical used to create a pyrotechnic material. Such a chemical is not itself a pyrotechnic material.
Inserts	PGI	Finished pyrotechnic devices that are "inserted" into ærial effects. Inserts are often paper tubes filled with pyrotechnic compositions that are fused or primed so they begin to function when the shell breaks or shortly their after. Examples: Hummers, reports, serpents, tourbillions, whistles.
Integral Mortar.	1126	A preloaded mortar containing pyrotechnic materials and intended for a single firing only.
Isolated Power Supply.	1126	An ungrounded power supply that provides electricity, in which both output wires are isolated from ground. An isolated power supply can be an ungrounded generator, an ungrounded DC-to-AC converter, or commercial power supplied through an isolation transformer.
Kaleidoscope.	Effect	Multicolored effect.
Kamuro.	Effect	A very large chrysanthemum with fine, elegant tails.

Labeled.	1123	Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation that maintains periodic inspection of production of labeled equipment or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.
Lance.	1123	A thin cardboard tube packed with color-producing pyrotechnic composition used to construct ground display pieces. Lances are mounted on a frame and fused so that ignition of all tubes is nearly simultaneous.
Lancework.	PGI	A frame on which are mounted numerous lances that are connected by quickmatch and when ignited make designs, emblems, slogans, etc. See also Set Piece.
Leader.	PGI	A short piece of quickmatch with a safety cap used as the "leader fuse" or ignition fuse on ærial shells, set pieces, racks, etc.
Lemon.	Color	A light, bright yellow.
Less than container load.	PGI	Less than a full container of many shipments.
Less than truckload.	PGI	Less than a full truck of many shipments.
Lift Charge or Lift Powder.	PGI	The pyrotechnic composition, most commonly black powder, which when ignited propels the shell into the air. The lift charge is normally enclosed in paper (or in some shells, in plastic) and is ignited by the shell leader. The lift charge is sometimes referred to simply as "lift."
Line Rocket.	PGI	A case with a nozzle or choke, charged with a fierce burning composition and attached to a cord, rope or wire. The device follows the rope instead of flying

		freely. Line rockets and their elaborations are some- times called "flying pigeons" or simply "pigeons."
Listed.	1123, 1124	Equipment or materials included in a list published by an organization acceptable to the authority hav-

& 1126

Equipment or materials included in a list published
by an organization acceptable to the authority hav-
ing jurisdiction and concerned with product evalu-
ation that maintains periodic inspection of produc-
tion of listed equipment or materials and whose
listing states either that the equipment or material
meets appropriate standards or has been tested and
found suitable for use in a specified manner. The
means for identifying listed equipment may vary for
each organization concerned with product evalua-
tion, some of which do not recognize equipment as
listed unless it is also labeled. The authority having
jurisdiction should utilize the system employed by
the listing organization to identify a listed product.

Low Burst/Break.	PGI	A shell which explodes below the usual height either
		on the way up or down.

Low explosive.	PGI	The ATF classification for non-detonating explo-
		sives. Includes most display fireworks, blackpowder,
		etc.

Lycopodium.	1126	The spores produced by the genus of mosses called
		lycopodium. This powdery, organic, yellow mate-
		rial can be agitated and dispersed mechanically into
		a cloud and then ignited by a spark, pilot flame, or
		electrical heating device. Although not a pyrotechnic
		material, this material is used by special effects oper-
		ators to produce fire effects or in conjunction with
		other pyrotechnics to create a special effect.

Magazine.	1126	Any building, structure, or indoor container used
_		exclusively for the storage of explosive materials as
		defined in NFPA 495. Explosive Materials Code.

Magenta.	Color	A light, bright purplish-pink.

Magnesium. Effect A very bright base for colors.

Manual Electrical Firing Unit.	1123	A panel or box with manually operated switches that control the flow of electric current to electric matches attached to fireworks devices. The unit contains wires or cables that are attached to junctions that are, in turn, connected to the electric matches.
Manual Ignition.	1123	A technique used to ignite fireworks using a hand- held ignition source such as a fusee or portfire.
Manufacturer.	1126	An individual who performs the following: (a) Prepares any pyrotechnic material; (b) Loads or assembles any pyrotechnic device. Exception No. 1: In the case of binary systems, the supplier of preweighed or premeasured ingredients, not the person mixing the ingredients, is considered the manufacturer of any pyrotechnic materials created from binary components. Exception No. 2: The person loading binary materials into devices supplied by the manufacturer of binary systems is not considered a manufacturer where such loading is performed NOTE: A federal explosives manufacturer's license (ATF) is required where a binary system is used and the components are mixed in the course of a trade or business to create an explosive material in accordance with the instructions of the manufacturer.
Match.	PGI	See Blackmatch and Quickmatch.
Meal Powder.	PGI	Finely powdered black powder.
Mine.	PGI	A device designed to project many ignited stars and/ or other effects into the air from a mortar. When compared with shells, mines usually produce visual effects which are seen at lower altitudes. A mine-like effect is produced by a "flowerpot."
Misfire.	PGI	A shell in which the quickmatch burns away after being lighted but nothing else happens, leaving a live shell in the mortar (contrast with dud).

Monitor.	PGI	A person designated by the sponsors of the display to keep the audience in the intended viewing area and out of the discharge and fallout areas.
Mortar line.	PGI	The line of mortars. Typically the mortars are buried and used for a manually fired display.
Mortar Racks.	PGI	Sturdy wooden or metal frames used to support mortars in an upright position usually above ground.
Mortar Trough.	PGI	Above ground structures filled with sand or similar material into which mortars are positioned ready for use in a fireworks display.
Mortar.	1123	A tube, closed on one end, from which certain ærial devices are fired into the air.
Multiple Break Shell.	PGI	An ærial shell composed of more than one distinct section, each producing a separate effect in sequence. There are several different commonly used designs; however, all of these result in an increased risk of a dud falling into the fallout area. Shells containing numerous small shells may be called "shell of shells," "puppadella," or "many small flowers."
Multishot.	Effect	A collection of ærial shells or Roman candles, usually in a box.
Multiple-tube.	Effect	See Multishot.
Muzzle Burst.	PGI	A shell which bursts just as it leaves the mortar, scattering stars and burning material in all directions at ground level.
Muzzle.	PGI	The mouth of a mortar or tube.
National Fire Protection Association (NFPA).	PGI	A non-profit association that develops fire protection and other safety standards and codes.
National Fireworks Association (NFA).	PGI	A politically active organization of fireworks businesses and enthusiasts

Niagara falls. **PGI** A type of gerb that is hung upside down so the effects fall to the ground. No-fire Current. **PGI** The maximum current that can be applied to an electric match for 5 seconds at room temperature without the match igniting. Nonelectric Detonator. 1126 A detonator that does not need electric energy to function. PGI Several turns of paper fastened to the end of a Nosing. roman candle, fountain, gerb, or other device that is used to retain prime or hold the fuse. The term is also used to refer to the container holding the payload of a rocket. PGI Operator. See Display Operator. Operator. 1123 The person with overall responsibility for the safety set up, and discharge of an outdoor fireworks display. Color Orange. Pumpkin. Oxidizer. 1126 Usually an oxygen-rich, ionically bonded chemical that decomposes at moderate to high temperatures. Where such a chemical decomposes, it releases oxygen. In addition to ionic solids, an oxidizer can be a material having covalent molecules containing halogen atoms. An oxidizer is an ingredient of pyrotechnic materials. Palm Tree. Effect A charcoal-based effect that looks like a palm tree in the sky. Parachute. Effect Small parachutes that usually have magnesium stars. Passfire. PGI Bare match that connects the leader to the cross match inside, then to the lift charge of an ærial shell or device.

Pattern Shell.	PGI	Any shell making a distinctive pattern in the sky. These may include "butterflies," "hour glasses," "crosses," "rings," "stars," "hearts," "letters" and a variety of other shapes.
Peanut.	Effect	Two round shells assembled to fire from one mortar, a.k.a. double bubble.
Peony Shell.	PGI	A spherical hard-breaking shell in which the stars do not leave tails. The terms peony and chrysan- themum are not always used in this precise way and loose usage is common.
Performance.	1126	The enactment of a musical, dramatic, operatic, or other entertainment production. The enactment begins and progresses to its end according to a script, plan, or other preconceived list of events. A performance can include encores.
Performer.	1126	Any person active in a performance during which pyrotechnics are used and who is not part of the audience or support personnel. Among others, performers can include, but are not limited to, actors, singers, musicians, and acrobats.
Permittee.	1126	The person or persons who are responsible for obtaining the necessary permits for a production. The permittee can vary from jurisdiction to jurisdiction. The pyrotechnic operator is not necessarily the permittee.
Photoflash Flashpowder.	1126	A loose pyrotechnic mixture that yields a very large amount of light for a small fraction of a second on exploding.
Pistil.	Effect	The center of a flower style shell, just as in nature.
Portfire.	1123	A long tube containing slow-burning pyrotechnic composition that is sometimes used to ignite fireworks at outdoor fireworks displays.
Potential Landing Area.	1123	See Fallout Area.
Preload.	1126	A pyrotechnic device supplied by the manufacturer in a ready-to-use condition.

Prime.	PGI	A slurry, often made of black powder, a binder and water or other solvent, and used to help insure the ignition of fireworks.
Producer.	1126	An individual who has overall responsibility for the operation and management of the performance where the pyrotechnics are to be used. Generally, the producer is an employee of the promotion com- pany, entertainment company, festival, theme park, or other entertainment group.
Production.	1126	All the performances of a musical, dramatic, operatic, or other series of shows. There are two types of productions: fixed and touring.
Proximate Audience.	1126	An audience closer to pyrotechnic devices than permitted by NFPA 1123, Code for Fireworks Display.
Purple.	Color	A mixture of red and blue. A difficult color to make.
Puff pot.	PGI	A type of flash pot used with significantly smaller amounts of binary flash powder.
Pyrotechnic Device.	1126	Any device containing pyrotechnic materials and capable of producing a special effect as defined in this standard.
Pyrotechnic Material (Pyrotechnic Special Effects Material).	1126	A chemical mixture used in the entertainment industry to produce visible or audible effects by combustion, deflagration, or detonation. Such a chemical mixture consists predominantly of solids capable of producing a controlled, self-sustaining, and self-contained exothermic chemical reaction that results in heat, gas, sound, light, or a combination of these effects. The chemical reaction functions without external oxygen.
Pyrotechnic Operator (Special Effects Operator).	1126	An individual who has responsibility for pyrotechnic safety and who controls, initiates, or otherwise creates special effects. The operator is also responsible for storing, setting up, and removing pyrotechnic materials and devices after a performance.

Pyrotechnic Special Effect.	1126	A special effect created through the use of pyrotechnic materials and devices. See also Special Effect.
Pyrotechnics.	1126	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.
Quick Match.	1126	Black match that is encased in a loose fitting paper sheath. Although exposed black match burns slowly, quick match burns extremely rapidly and almost instantaneously. Quick match is used in fuses for ærial shells and for simultaneous ignition of a number of pyrotechnic devices, such as lances in a ground display piece. [The proper term for this article is "piped match." What we call unpiped black match is more accurately defined as "quick match" (see MIL-Q-378B and UN regulations). However, common use of these terms has widely diverged from accurate, referenced military and international definitions. Therefore, for purposes of this manual and related written examinations, "quick match" shall refer to black powder impregnated string in paper piping. "Black match" shall refer to un-piped black powder impregnated string. –ED.]
Racks.	PGI	See Mortar Racks.
Rainbow.	Effect	A variety of the primary colors and their variations.
Ready Boxes.	PGI and NFPA	Sturdy fire-resistant boxes for storage of shells or fireworks during a fireworks show in the discharge area of the display site. The lid must be permanently affixed and close when released. Tarps shall not be used as ready boxes. (NFPA 1123-2018, Section 4.2.4)
Red.	Color	Varies from pastels and pinks to intense ruby red.
Regulation.	PGI	A federal state or local rule or law.

Rehearsal. 1126 A practice performance during which no audience is present. **PGI** Report. A loud explosion, normally much louder than the explosion of a star shell breaking. Sometimes used synonymously with "salute." A report, however, is actually the sound produced by the explosion. **PGI** Ring Effect. A type of pattern. Effects that rise from the mortar with an ærial shell. Rising Effect. PGI Rocket. **PGI** A device consisting of a cardboard tube charged with black powder (or other propellant). The tube is attached to a stick or fins which gives it guidance. The nose or heading of a skyrocket may contain a salute, stars or special effects. After completion of its flight, a rocket tube and stick fall back to the ground intact, having the potential to do damage to people and property. Rockets are seldom used in commercial displays because they are more dangerous than shells and less efficient in getting large payloads several hundred feet into the air. Roman Candle. **PGI** A cardboard tube designed periodically and repeatedly to shoot stars or special effects into the air. Round. Style A shape of the actual ærial shell. Most flower styles are round as opposed to canister. These shells are actually spherical in shape. They are also referred to as ball shells Effect Saettines Small, loud reports specifically timed and patterned. Safety Cap. PGI A tube of heavy paper which is closed at one end and fits over the bared blackmatch at the end of a quickmatch leader to protect it from accidental ignition or damage. It is removed by the shooter just before ignition. PGI Safety fuse, visco A type of water-resistant and side-ignition-resistant

time fuse. Most "safety fuse" is a thin green or red fuse. It is used as leader fuse for some smaller fireworks and internal effects in some larger devices.

Safety Fuse, time	1126	A flexible cord containing an internal burning medium by which fire or flame is conveyed at a constant and relatively uniform rate from the point of ignition to the point of use.
Salute Powder.	1123	A pyrotechnic composition that makes a loud report when ignited and constitutes the sole pyrotechnic effect of a salute.
Salute.	PGI	A shell containing a powerful composition (usually flash powder) which explodes violently, producing a loud report with very little visual effect other than smoke and a bright flash. Titanium salutes are similar except the loud report is accompanied by a large cloud of white sparks resulting from the inclusion of coarse titanium powder in the composition.
Sand Boxes.	PGI	See Mortar Trough.
Saturn.	Effect	A star shell with a ring around it.
Saxon.	1126	A pyrotechnic device consisting of a tube that rotates around a pivot point to produce a circular shower of sparks.
Screamer.	Effect	Effects that whiz with a screeching sound.
Secured Area.	PGI	The area from which a fireworks display is performed and from which the public is excluded.
Serpents.	Effect	Effects that travel in a serpentine manner, a.k.a. fish or snakes.
Set Piece.	PGI	A ground display such as lancework, wheels, gerbs, fountains and/or other devices which function while on poles, frames or other devices attached to the ground.
Shall.	1123	Indicates a mandatory requirement.

Shell Leader.	PGI	The length of quickmatch attached to a shell which transfers fire to the lift charge.
Shell of Shells.	Effect	A number of smaller shells within a larger shell.
Shooter.	1123	A member of the fireworks display crew (either the operator or an assistant) who performs the actual ignition of the fireworks, either by manual or electrical means.
Shooters.	Effect	Bright magnesium stars that shoot across the sky. Also called "Go-Getters" or "Fish" or "Swimmers."
Should.	1123	Indicates a recommendation which is advised but not required.
Silver.	Color	Often made with aluminum or titanium.
Skyrocket.	PGI	See Rocket.
Smoke Pot.	1126	A pyrotechnic device used to create smoke during a production.
Soft Detonator.	1126	A detonator with a higher velocity than a bullet hit, but with no metallic elements or jacket. It is essentially a blasting cap without a metal jacket.
Sonic Flash (Salute Powder, Extra-Fast Flash, Concussion Flashpowder).	1126	Flashpowder specifically formulated to produce a loud concussive effect.
Spark producing device (SPD).	PGI	A small pyrotechnic special effect that upon ignition produces a small shower of sparks.
Sparkle Flashpowder.	1126	A flashpowder that produces a bright flash of light and a shower of sparks when ignited.
Sparkle Pot.	1126	A pyrotechnic device intended to contain and control the discharge of sparkle flashpowder.

Special Effect Shell.

PGI

Any shell which contains something other than a salute or simple stars. Such shells usually include: whistles which are cardboard or plastic tubes filled with special whistling composition. Serpents which are small tubes charged with fierce burning composition that jet and shoot about in the air, tourbillions which are tubes charged with fierce burning composition but have the exhaust hole in the side of the tube so instead of jetting like serpents, spin like small wheels. Numerous other special effects are to be found including small shells which explode several seconds after the large shell bursts, various class "C" items such as firecrackers and "jumping jacks" and comets which if they explode are called "crossette comets."

Special Effect.

1126

A visual or audible effect used for entertainment purposes, often produced to create an illusion. For example, smoke might be produced to create the impression of fog being present, or a puff of smoke, a flash of light, and a loud sound might be produced to create the impression that a cannon has been fired.

Spider or Spider Web Shell. **PGI**

A hard-breaking shell having trailing stars but which may have a somewhat asymmetrical break. Spider shells are usually cylindrical shells with a small flash powder breaking charge. Similar shells having eight large stars (comets) are sometimes called Octopus Shells.

Sponsor.

1123

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.

1123

A member of the fireworks display crew (either the operator or an assistant) who observes the firing and bursting of ærial 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.

Squib. 1126 A device consisting of an electric match plus a base pyrotechnic charge. It usually is contained in a thin metal tube and often has a hole or slit to direct the flame produced when fired. Squibs are regulated in a manner similar to blasting caps. Squibs are not usually used in fireworks, although electric matches often are incorrectly called squibs. Standard. **PGI** Similar to a code, often with requirements for equipment rather than use. Stars. **PGI** Small cubes, cylinders or balls of composition which are discharged from shells, mines, roman candles, or other devices, and burn while in the air. Stars which produce a colored ball of light are called colored stars. If stars leave a trail of silver or gold twinkling particles, they may be called comet stars, silver or gold streamers, flitter or glitter stars. Stickless Rocket. Effect A comet. Effect Strobe. A very bright, flashing, magnesium star. Strong White. Color A brighter almost silver white. Support Personnel. 1126 Any individual who is not a performer or member of the audience. Among others, support personnel include the road crew of any production, stage hands, property masters, security guards, fire watch officers, janitors, or any other employee. Tail or Trunk. Effect A rising color on an ærial shell. Trunks are wider. Theatrical 1126 A pyrotechnic material intended for use in theatrical Flashpowder. shows. Theatrical flashpowder produces a flash of light when ignited. Typical theatrical flashpowders burn more slowly than salute powder and also might produce a shower of sparks. Theatrical flashpowder is not intended to produce a loud report. Time fuse. **PGI** A thicker cord like multicolor fuse. It is used primarily as delay fuse between the break charge and the leader in ærial shells. See also Safety fuse, time.

Titanium.	Effect	Creates silver sparkles when added to effects.
Top Fused Shell.	PGI	An ærial shell in which the time fuse is positioned on the top of the shell where it is ignited by the shell leader. See also <i>Passfire</i> .
Tourbillion.	Effect	Effects that whiz in small circles, a.k.a. whirlwinds.
Touring Production.	1126	Any production performed in more than one geographic location.
Transformation.	Effect	Effects that change in intensity, duration, and/or color.
Troughs.	PGI	See Mortar Troughs.
Truckload.	PGI	Full truck of a single shipment.
UN 0066 Ignitor Cord (1.4G).	PGI	A DOT classification for some types of fuses and match.
UN 0101 Fuse, Nondetonating (1.3G).	PGI	A DOT classification for some types of fuses and match.
UN 0105 Fuse, Safety (1.4G).	PGI	A DOT classification for some types of fuses and match.
UN 0335 Fireworks (1.3G).	PGI	The DOT classification for most display fireworks.
UN 0336 Fireworks (1.4G).	PGI	The DOT classification for some display fireworks, and most inserts and consumer fireworks.
UN 0431 Articles, Pyrotechnic (1.4G).	PGI	A DOT classification for pyrotechnic articles for professional use only. Examples: Inserts, preloaded pyrotechnic special effects, and some display fireworks.
UN 0432 Articles, Pyrotechnic (1.4G).	PGI	A DOT classification for pyrotechnic articles for professional use only. Examples: Smaller preloads.
UN 0454 Igniters (1.4S).	PGI	A DOT classification for igniters. Examples: Electric match.

US Consumer Product Safety Commission (CPSC).	PGI	A federal commission that regulates the consumer products, including consumer fireworks.
US Department of Transportation (DOT).	PGI	A federal department that regulates the transportation of all hazardous materials and establishes the hazard classifications for them. The DOT also regulates the storage of hazardous materials while in transit.
Variegated. Venue Manager.	Effect 1126	2-3 different colors in the same style or pattern. An individual who has overall responsibility for the operation and management of the facility where pyrotechnics are to be used in a performance.
Visco.	PGI	See also safety fuse, visco.
Waterfall.	PGI	Flowing effect, usually silver or gold.
Wheel Driver.	PGI	See Driver.
Wheel.	PGI	A revolving fireworks device mounted through its axle on a post above ground. When ignited, the wheel spins producing colored patterns and/or a spray of sparks.
Whistles.	PGI	Effects that make high- to low-pitched whistling sounds.
White.	PGI	Varies from a soft light to almost silver bright.
Willow Shell.	PGI	A soft-breaking shell containing trailing stars which droop forming a pattern in the sky similar to that of a willow tree. Sometimes used for any soft breaking shell even if tailed stars are not used.
Windage.	PGI	The gap or space between the side of an ærial shell and the side of the mortar.
Yellow.	PGI	Varies from a pale yellow to almost gold.