

TITLE 49—TRANSPORTATION  
Subtitle B—Other Regulations Relating to Transportation  
Chapter I—Research and Special Programs Administration, Department of Transportation  
Subchapter C—Hazardous Materials Regulations  
Part 173—Shippers—General Requirements for Shipments and Packagings  
Subpart C—Explosives and Blasting Agents; Definitions and Preparation  
Class C Explosives; Definitions

**EFFECTIVE DATE: October 1, 1986**

49 CFR § 173.100 Definition of Class C explosives.

(a) Explosives, class C, are defined as certain types of manufactured articles which contain class A, or class B explosives, or both, as components but in restricted quantities, and certain types of fireworks. These explosives are further specifically described in this section.

(b) Small arms ammunition is fixed ammunition consisting of a metallic, plastic composition, or paper cartridge case, a primer, and a propelling charge, with or without bullet, projectile, shot, tear gas material, tracer components, or incendiary compositions, or mixtures, and is further limited to the following:

(b)(1) Ammunition designed to be fired from a pistol, revolver, rifle, or shotgun held by the hand or to the shoulder.

(b)(2) Ammunition of caliber less than 20 millimeters with incendiary solid inert or empty projectiles (with or without tracers), designed to be fired from machine guns or cannons.

(b)(3) Blank cartridges including canopy remover cartridges, starter cartridges, and seat ejector cartridges, containing not more than 500 grains of propellant powder, provided that such cartridges shall be incapable of functioning en masse as a result of the functioning of any single cartridge in the container or as a result of exposure to external flame.

(b)(4) Twenty millimeter ammunition other than specified in § 173.53(q).

(c) Explosive cable cutters are used for cutting cables, etc. They consist of a metal device containing a knife-edged component which is propelled by a small charge of an explosive compound.

(d) Cord, detonating flexible is a device consisting of a core of pentaerythrite tetranitrate, cyclotrimethylene-trinitramine or similar explosive overspun with tapes, yarns and plastics or waterproofing compounds without wire counterering. Approval of detonating cord as a class C explosive is contingent upon:

(d)(1) examination by an agency listed in § 173.86(b); and

(d)(2) a demonstrated ability to confine blast effects of a detonation to the package as prepared for transportation, and without propagation of detonation to similar packages which surround it.

(e) Percussion fuzes, combination fuzes, and time fuzes are devices designed to ignite powder charges of ammunition or to initiate an intermediate charge (booster) in projectiles, bombs, etc. When such fuzes are assembled with booster charges they are properly described as "detonating fuzes" (see § 173.53(g)(2)).

(f) Tracer fuzes and tracers are devices which are attached to projectiles and contain a slow-burning composition to show the flight of projectiles at night.

(g) Cartridge bags, empty, with black powder igniters consist of empty bags having attached thereto an igniter composed of black powder. (See § 173.93 (b), (c), and (d) when shipped with propellant explosives.)

(h) Igniters consist of fiberboard, plastic, paper or metal tubes containing a small quantity of igniting compound which is ignited by the action of a primer, pull wire or scratch composition.

(i) Delay electric igniters consist of small metal, fiberboard, or pasteboard tubes containing a wire bridge in contact with a small quantity of ignition compound. The ignition compound is in contact with or in close proximity to a short piece of safety fuse.

(j) Electric squibs consist of small tubes or blocks containing a small quantity of ignition compound in contact with a wire bridge.

(k) Fuse lighters and fuse igniters are small cylindrical hollow pasteboard or metal tubes containing an igniting composition in one end, the other end being open to permit it to be placed on safety fuse.

(l) Safety squibs are small paper tubes containing a small quantity of black powder. One end of each tube is usually twisted and tipped with sulfur.

(m) Instantaneous fuse is cotton yarn impregnated with metal powder. No restrictions other than packing in strong wooden boxes or barrels plainly marked "INSTANTANEOUS FUSE" are prescribed in this part.

(n) Primers are devices used to ignite the powder charges of ammunition or the black powder bursting charges of projectiles. For small-arms ammunition the primers are "small-arm primers" or "percussion caps".

(o) Safety fuse, consisting of a core of black powder overspun with yarns, waterproofing compounds, and/or tapes must be packed in outside fiberboard boxes, wooden boxes, wooden barrels, bales, or metal containers, and must be described for shipping purposes as "SAFETY FUSE". No other restrictions apply in this part.

(p) Toy plastic or paper caps for toy pistols in sheets, strips, rolls, or individual caps, must not contain more than an average of twenty-five hundredths of a grain of explosive composition per cap and must be packed in inside packages constructed of cardboard not less than 0.013-inch in thickness, metal not less than 0.008-inch in thickness, noncombustible plastic not less than 0.015-inch in thickness, or a composite blister package consisting of cardboard not less than 0.013-inch in thickness and noncombustible plastic not less than 0.005-inch in thickness, which shall provide a complete enclosure and the minimum dimensions of each side or end of such package shall be not less than 1/8

-inch in height. The number of caps in these inside packages shall be limited so that not more than 10 grains of explosives composition shall be packed into one cubic inch of space and not exceeding 17.5 grains of the explosive composition of toy caps shall be packed in any inside container. These inner containers must be packed in outside containers as specified in § 173.109.

(q) Explosive rivets, each containing not more than 375 milligrams of explosive composition, are exempt from specification packaging and labeling requirements when packed in pasteboard or other inside boxes in securely closed strong wooden boxes, fiberboard boxes or metal containers. Each outside container must be marked "EXPLOSIVE RIVETS". No other restrictions apply in this part.

(r) Common fireworks are fireworks devices suitable for use by the public and designed primarily to produce visible effects by combustion. Some small devices designed to produce audible effects are also included in this class. The types, sizes and amount of pyrotechnic contents of these devices are limited as enumerated in this paragraph. No component, of any device listed in this paragraph, which produces or is intended to produce an audible effect shall contain pyrotechnic composition in excess of 2 grains in weight; nor shall such device or component, upon functioning, project or disperse any metal, glass or brittle plastic fragments. (Propelling or expelling charges consisting of a mixture of sulfur, charcoal, and saltpeter are not considered as designed to produce audible effects). Any new device, not enumerated in this paragraph, must be examined by the Bureau of Explosives and approved by the Director, OHMT, before being offered for transportation as Common Fireworks. Common fireworks must be in a finished state exclusive of mere ornamentation as supplied to the retail trade and must be so constructed and packed that loose pyrotechnic composition will not be present in packages in transportation. Fireworks, except articles defined in paragraphs (s) through (y) inclusive, of this section, other than common fireworks as defined in this paragraph, and those forbidden for transportation in § 173.51, are classed as Special Fireworks (see § 173.88(d)).

(r)(1) Roman candles, not exceeding ten balls spaced uniformly in the tube, total pyrotechnic composition not to exceed twenty grams each in weight. The inside tube diameter shall not exceed 3/8

inch.

(r)(2) Sky rockets with sticks, total pyrotechnic composition not to exceed twenty grams each in weight. The inside tube diameter shall not exceed 1/2

inch. The rocket sticks must be securely fastened to the tubes.

(r)(3) Helicopter type rockets, total pyrotechnic composition not to exceed twenty grams each in weight. The inside tube diameter shall not exceed 1/2

inch.

(r)(4) Cylindrical fountains, total pyrotechnic composition not to exceed seventy-five grams each in weight. The inside tube diameter shall not exceed 3/4

inch.

(r)(5) Cone fountains total pyrotechnic composition not to exceed fifty grams each in weight.

(r)(6) Wheels, total pyrotechnic composition not to exceed sixty grams for each driver unit or two hundred and forty grams for each complete wheel. The inside tube diameter of driver units shall not exceed 1/2

inch.

(r)(7) Illuminating torches and colored fire in any form, total pyrotechnic composition not to exceed one hundred grams each in weight.

(r)(8) Dipped sticks, the pyrotechnic composition of which contains any chlorate or perchlorate shall not exceed 5 grams. Sparklers, the composition of which does not exceed 100 grams each and which contain no magnesium or magnesium and a chlorate or perchlorate, are not subject to the regulations in Parts 170-189 and 397 of this title.

(r)(9) Mines and shells of which the mortar is an integral part, total pyrotechnic composition not to exceed forty grams each in weight.

(r)(10) Firecrackers and salutes with casings, the external dimensions of which do not exceed one and one-half inches in length or one-quarter inch in diameter, total pyrotechnic composition not to exceed two grains each in weight.

(r)(11) Novelties consisting of two or more devices enumerated in this paragraph when examined by the Bureau of Explosives and approved by the Director, OHMT.

(s) Igniter cord consists of textile yarns and/or a wire uniformly covered with a combustible chemical mixture, with or without additional textile or wire counterings, waterproofing or finishing coatings which, when ignited burns externally at various rates according to design. Igniter cord must be packed in strong,

tight, outside fiberboard boxes or drums, wooden boxes or metal containers plainly marked "IGNITER CORD."

(t) Explosive auto alarms are tubular devices containing a small amount of explosive composition and igniting compound which is ignited by an electric spark. These devices must be so designed that they will neither burst nor cause external flame on functioning.

(u) Toy propellant devices and toy smoke devices consist of small paper or composition tubes or containers containing a small charge of slow burning propellant powder or smoke producing powder. These devices must be so designed that they will neither burst nor produce external flame on functioning. Ignition elements, if attached, must be of a design examined by the Bureau of Explosives and approved by the Director, OHMT.

(v) Oil well cartridges are tubular devices each containing not more than 350 grains of propellant powder and having no ignition device or element. Cartridges must be constructed and packed so that they will be incapable of functioning en masse as a result of exposure to external flame.

(w) Actuating cartridges, explosive, fire extinguisher or valve consist of a small metal or fiber housing containing a small amount of initiating explosive and a propellant and are used to actuate valves on remotely controlled fire extinguishers or other apparatus.

(x) Cigarette loads, trick matches, and trick noise makers, explosive, must be of type examined by the Bureau of Explosives and approved by the Director, OHMT and are described as follows:

(x)(1) Cigarette loads consist of wooden pegs to which are affixed a small amount of explosive composition.

(x)(2) Trick matches consist of book matches, strike anywhere matches, or strike-on-box matches which have small amounts of explosive or pyrotechnic composition affixed to the match stem just below the match head.

(x)(3) Trick noise makers, explosive, consist of spheres containing a small amount of explosive composition.

(y) Smoke candles, smokepots, smoke grenades, smoke signals, signal flares, hand signal devices, and very signal cartridges are devices designed to produce visible effects for signal purposes. These devices must contain no bursting charges and no more than 200 grams of pyrotechnic composition each (see Note 1), exclusive of smoke composition (see Note 2), unless greater weight of composition is examined by the Bureau of Explosives and approved by the Director, OHMT.

Note 1: Pyrotechnic compositions (other than smoke compositions) are defined as chemical mixtures which on burning and without explosion, produce visible or brilliant displays or bright lights.

Note 2: Pyrotechnic smoke compositions are defined as chemical smoke producing mixtures, which on ignition burn at a controlled rate, without the production of flame and without the build-up of internal pressure that would rupture or burst the end product.

(z) Explosive release devices consist of a rod or link fitted with means for mechanical attachment to other apparatus or equipment and containing a small electrically initiated explosive charge which will break the rod or link upon functioning. These devices must be so designed that they will not function other explosive devices in the package sympathetically.

(aa) Explosive power devices, Class C, are devices designed to drive generators or mechanical apparatus by means of propellant explosives, Class B. The devices consist of a housing with a contained propellant charge and an electric igniter or squib. The devices must be of a type examined by the Bureau of Explosives and approved by the Director, OHMT for this classification.

(bb) Detonating fuzes, class C explosives, are used in the military service to detonate high explosive bursting charges of projectiles, mines, bombs, torpedos, grenades, demolition charges, and safety and arming devices. They contain a detonator and a quantity of high explosives. Additionally they may be used by the military to transmit a detonation between two or more devices. This type detonating fuze contains either an explosive train consisting of mild detonating fuse, metal clad, igniter fuse-metal clad or similar type fuses, and any combination of one or more boosters, detonators and high explosives in a total quantity not exceeding 25 grams of explosive composition. All detonating fuzes, class C explosives, must be made and packed so that they will not cause functioning of other fuzes, explosives, or other explosive devices if one of the fuzes detonates in a shipping container or in adjacent containers.

(cc) Mild detonating fuses, metal clad and flexible linear shaped charges, metal clad consists of a core containing not more than 2 1/2

grains of high explosive composition per lineal foot, clad with metal either with or without a covering of tapes, yarns, plastics or waterproofing compounds. Mild detonating fuse, metal clad, and flexible linear shaped charges, metal clad, in lengths not over 26 feet and not exceeding 15 grains per lineal foot having the individual lengths separated from adjacent lengths so that mass propagation will not occur, may be shipped as class C explosives.

(dd) Igniter fuse-metal clad consists of a base metal tube with a core of explosive igniter composition in quantity not exceeding 20 grains per foot.

(ee) Starter cartridges, jet engine, Class C, consist of a metal, plastic, and/or rubber case, each containing a pressed cylindrical block of flammable solid material and having in the top of the case a small compartment that encloses an electric squib, small amount of black powder, and/or smokeless powder which constitute an igniter. The starter cartridge is used to activate a mechanical starter for jet engines and must be of a type examined by the Bureau of Explosives and approved by the Director, OHMT, except as pro-

vided in § 173.51(a)(16) and § 173.86(a).

(ff) "Cartridge, practice ammunition" means a metal cartridge case containing a primer, a propelling charge of not more than 500 grains of propellant powder, and a solid projectile or a projectile containing a smoke spotting charge.

(gg) Detonators (§ 173.53(g)(1)), which will undergo only limited propagation in the shipping package, are classed as Class C explosives. For the purposes of this paragraph, limited propagation means that if one detonator near the center of a shipping package is exploded, the aggregate weight of explosives, excluding ignition and delay charges, in this and all additional detonators in the outside packaging that explode may not exceed 25 grams. Detonators which mass detonate in the shipping package may not be classed as Class C explosives. For the purposes of this paragraph "mass detonate" means that more than 90 percent of the devices tested in a package explode practically simultaneously.

(hh) Detonating primers (§ 173.53(g)(2)) in which the total explosive charge per unit does not exceed 25 grams, and which will undergo only limited propagation in the shipping package, are classed as Class C explosives. For the purposes of this paragraph, limited propagation means that if one detonating primer near the center of a shipping package is exploded, the aggregate weight of explosives, excluding ignition and delay charges, in this and all additional detonating primers in the outside packaging that explode may not exceed 25 grams. Detonating primers which mass detonate in the shipping package may not be classed as Class C explosives. For the purposes of this paragraph, "mass detonate" means that more than 90 percent of the devices tested in a package explode practically simultaneously.

(ii) Explosive pest control devices, class C explosives, consist of a cardboard-pasteboard type tube not exceeding 4 inches in length and 3/4

inch in diameter or a shotgun shell type having an explosive projectile. They may contain a mixture of potassium perchlorate, aluminum powder, sulfur, black powder, smokeless powder or similar pyrotechnic mixture. The component which produces the audible effect may not contain more than 40 grains of explosive composition. Devices and packaging must be of a type examined by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT.