

78 Manufacture of igniter materials, explosives, blasting by means of explosives, pyrotechnic compositions, photo flash lamps, production of artificial smoke**78 (IPC: C06) Explosives; Matches****78a Manufacture of matches, mechanical part****78a (IPC: C06F) Matches; Manufacture of matches****78b Manufacture of matches, chemical part****78c Manufacture of gunpowder and explosives****78c (IPC: C06B) Explosives; Manufacture of explosive compositions and explosive compounds of indefinite structure; Use of single substances as explosives****78d Pyrotechnic charges, smoke generators, fog production, photo flashes****78d (IPC: C06D) Fireworks; Compositions therefor; Means for generating smoke or mist; Fulminating parts of flash-lights; Gas-attack compositions; Generation of gas for blasting or propulsion, chemical part****78e Blasting methods, detonation of explosive charges, blasting cartridges****78e (IPC: C06C) Detonating or priming compositions; Non-electric detonators; Fuses; Chemical lighters; Pyrophoric compositions****78f Chemical and pneumatic lighters; ignition strips, chemical part; pyrophoric metals and alloys****78a Manufacture of matches, mechanical part**

78a-1 Cutting and framing of matchsticks (78a-2; 38i-3)

78a-2 Framing of matchsticks (78a-1)

78a-3 Dipping, paraffining and drying of matchsticks (78a-4)

78a-4 Dipping frames for matchsticks (78a-3)

78a-5 Conveying chains and bars for matchsticks

78a-6 Removal of matchsticks from the frames

78a-7 Filling of matchboxes (packing machines 81a-12; labelling of matchboxes 81b-2)

78a-8 Manufacture of single matchsticks in continuous working process

78a-9 Single matchsticks, wax matches, match holder strips and blocks, match strips, matchbooks (44b-32 – 44b-43; 78b)

78a-10 Manufacture of match holder strips and blocks, match strips, wax matches, matchbooks and the like

78a-11 Printing and stamping of matches

78a-12 Miscellaneous features of match manufacture, e. g. application of friction compound to boxes, manufacture of cigar lighters, prevention of fires and their spreading in the manufacture of matches, aligning of finished matchsticks

78a (IPC: C06F) Matches; Manufacture of matches**78a-1/00 Mechanical manufacture of matches**

- 78a-1/02 . Cutting match splints (independently of other operations 38i)
- 78a-1/04 . Filling match splints into carrier bars; Discharging matches
- 78a-1/06 . Dipping, coating, impregnating, or drying of matches
- 78a-1/08 . Carrier bars
- 78a-1/10 . . Guiding means for carrier bars
- 78a-1/12 . Filling matches into boxes
- 78a-1/14 . Manufacture of ignition strips
- 78a-1/16 . Manufacture of matches connected together, e.g. in bands or blocks
- 78a-1/18 . Printing on matches or match-boxes when combined with match manufacture
- 78a-1/20 . Applying strike-surfaces, e.g. on match-boxes, on match-books
- 78a-1/22 . Assembling matches
- 78a-1/24 . Safety devices against fire
- 78a-1/26 . Machines for complete match manufacture

78a-3/00 Chemical features in the manufacture of matches

- 78a-3/02 . Wooden strip for matches or substitute therefor
- 78a-3/04 . . Chemical treatment before or after dipping, e.g. dyeing, impregnating
- 78a-3/06 . Ignition compositions
- 78a-3/08 . Strike-surface compositions

78a-5/00 Matches

- 78a-5/02 . Permanent matches
- 78a-5/04 . Wax matches

78b Manufacture of matches, chemical part

- 78b-1 Matchwood and its substitutes, as well as its chemical treatment before and after dipping: dyeing and impregnating (mechanical part 38i-3, 78a-1)
- 78b-2 Match igniting compositions
- 78b-3 Friction compounds for matches (mechanical friction surfaces 44b-40)
- 78b-4 Headless matches

78c Manufacture of gunpowder and explosives

- 78c-1 Black powder and similar mixtures
- 78c-2 Manufacturing processes for black powder: granulating, pressing, polishing, drying and the like
- 78c-3 Explosives derived from nitrated polyvalent alcohols, exclusive of nitro-glycerine (preparation of nitrated polyvalent alcohols 12o-5/04)
- 78c-4 Nitro-glycerine explosives (78c-9; 78c-11; preparation of nitrated glycerine 12o-5/04)
- 78c-5 Preliminary treatment of cellulose and other carbohydrates for the manufacture of explosives by nitration
- 78c-6 Nitration of cellulose and other carbohydrates
- 78c-7 Processing of waste acids in the manufacture of explosives
- 78c-8 Coating of nitrocellulose explosives
- 78c-9 Gunpowder and explosives containing nitrocellulose and other cellulose esters or other nitrated carbohydrates mixed with nitro-glycerine, oxygen carriers or the like
- 78c-10 Gunpowder and explosives containing nitrocellulose or other nitrated carbohydrates without important additives
- 78c-11 Gelatinizing nitrocellulose or other nitrated carbohydrates
- 78c-12 Stabilizing nitrocellulose or other nitrated carbohydrates
- 78c-13 Explosives from picric acid and other nitrophenols (preparation of picric acid 12q-15/01; preparation of nitrophenols 12q-15/01)
- 78c-14 Explosives from nitrated hydrocarbons and the like, aromatic amines and similar compounds (preparation of nitrated hydrocarbons 12o-3/01; preparation of aromatic nitramines 12q-1/01)

78c-15	Explosives from chlorates and perchlorates (preparation of chlorates and perchlorates 12i-7, 12i-8, 12i-11/14, 12i-11/18)
78c-16	Sprengel-type explosives
78c-17	Ammonium nitrate explosives
78c-18	Explosives of other kinds (initiator explosives 78e-2; mercuric fulminate 12o-22)
78c-20	Methods and devices for the mechanical processing of explosives in general, except 78c-1 – 78c-18 (charging of explosive shells 72d-18/02)

78c (IPC: C06B) Explosives; Manufacture of explosive compositions and explosive compounds of indefinite structure; Use of single substances as explosives (pure compounds 12i – 12q, 39b; detonating or priming compositions 78e-1/00)

Note:

In this subclass, the words "based on", with reference to explosive compositions, refer to the explosive ingredient present in the largest proportion by weight

78c-1/00	Explosive compositions based on inorganic nitrates
78c-1/02	. Black-powder
78c-1/04	. containing ammonium nitrate
78c-3/00	Explosive compositions based on nitrated polyalcohols
78c-3/02	. based on nitro-glycerin
78c-5/00	Explosive compositions based on nitrated carbonhydrates, such as gun-cotton
78c-5/02	. containing other explosive ingredients
78c-5/04	. . containing liquid esters of nitric acid
78c-7/00	Explosive compositions based on nitrated aliphatic compounds other than poly-alcohols or carbohydrates
78c-9/00	Explosive compositions based on nitrated aromatic compounds ("Sprengel"-explosives 78c-13/00)
78c-9/02	. based on nitrated phenols
78c-9/04	. based on nitrated toluene
78c-11/00	Explosive compositions based on chlorates or perchlorates
78c-13/00	Sprengel-type explosives, i.e. mixtures in which components are separately stored until the moment of explosion
78c-15/00	Explosive compositions not covered elsewhere
78c-15/02	. based on nitrated heterocyclic compounds
78c-17/00	Use of single substances as explosives
78c-19/00	Processes for influencing the explosive properties of explosive compositions or ingredients thereof, e.g. producing in special crystalline form
78c-19/02	. Surface coating
78c-19/04	. Gelatinising
78c-19/06	. Stabilising
78c-21/00	Methods of apparatus for the manufacture of explosives
78c-21/02	. Non-chemical features, e.g. forming, pressing, cutting, drying, packing

78d Pyrotechnic charges, smoke generators, fog production, photo flashes

78d-1/01	Pyrotechnic charges and materials, photoflash powders, incendiary compositions, also for the production of compressed gases (74d-7; rockets 46g; rocket fuels 46g-20)
----------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------

78d-1/02 Smoke generators, poison gases, production of artificial fog, chemical part (mechanical part 45k-4/50; 45k-13/00; 62c-20/02; 65a2-73; 72g-7/04), luminescent compositions

78d (IPC: C06D) Fireworks; Compositions therefor; Means for generating smoke or mist; Fulminating parts of flash-lights; Gas-attack compositions; Generation of gas for blasting or propulsion, chemical part (fuels 10)

78d-1/00 Fireworks; Compositions therefor; Illuminating and incendiary compositions

- 78d-1/02 . Incendiary compositions (solidifying liquid fuels 10b)
- 78d-1/04 . Fireworks; Rockets (projecting or launching missiles in general 72)
- 78d-1/06 . . Fire-crackers
- 78d-1/08 . . Manufacture
- 78d-1/10 . Flares; Torches; Flash-light powders

78d-3/00 Generation of smoke or mist, chemical part

78d-5/00 Generation of pressure gas, e.g. for blasting cartridges, starting cartridges, rockets

- 78d-5/02 . by decompressing compressed, liquefied, or solidified gases
- 78d-5/04 . by auto-decomposition of single substances
- 78d-5/06 . by reaction of two or more solids
- 78d-5/08 . by reaction of two or more liquids
- 78d-5/10 . by reaction of solids with liquids

78d-7/00 Compositions for gas-attacks

78e Blasting methods, detonation of explosive charges, blasting cartridges (fuzes for shells 72i)

- 78e-1 Blasting methods by means of explosives and liquefied gases; melting of explosives (mechanical blasting methods 5b)
- 78e-2 Primers, initiator substances, compositions for detonators (mercuric fulminate 12o-22; detonating caps for cartridges 72d-4; detonating compositions for torpedoes 65d-4; detonating compositions for sea mines 65e-3)
- 78e-3 Electrical detonators for blasting operations (shell fuzes 72i)
- 78e-3/05 Electric detonating methods and special devices for explosive charges (electric ignition machines 21d1-9 – 21d1-12; detonation of shells, bombs and landmines 72i; detonation of sea mines 65e-3; detonation of torpedoes 65d-4)
- 78e-4 Safety fuzes and nonelectric fuzes
- 78e-5 Blasting cartridges, chemical and mechanical sections, and landmines, chemical part (mechanical part 72d-17/08; sea mines 65e)
- 78e-6 Blasting caps (blasting caps as boosters for shells 72i)

78e (IPC: C06C) Detonating or priming compositions; Non-electric detonators; Fuses; Chemical lighters; Pyrophoric compositions

78e-1/00 Detonating or priming compositions for detonators, primers or blasting caps

- 78e-1/02 . based on fulminates, or inorganic explosives, e.g. azides
- 78e-1/04 . Delay compositions

78e-5/00 Fuses

- 78e-5/04 . Detonating fuses
- 78e-5/06 . Fuse igniting means; Fuse connectors
- 78e-5/08 . Devices for the manufacture of fuses

78e-7/00 Non-electric detonators; Blasting caps; Primers

- 78e-7/02 . Manufacture; Packing

78e-9/00	Chemical contact igniters; Chemical lighters
78e-15/00	Pyrophoric compositions; Flints (chemical lighters 78e-9/00; alloys per se 40b)
78e-21	Blasting methods by means of explosives and liquefied gases; melting of explosives (mechanical blasting methods 5b)
78e-23/00	Electrical detonators for blasting operations (shell fuzes 72i)
78e-23/05	Electric detonating methods and special devices for explosive charges (electric ignition machines 21d1-9 – 21d1-12; detonation of shells, bombs and landmines 72i; detonation of sea mines 65e-3; detonation of torpedoes 65d-4)
78e-25	Blasting cartridges, chemical and mechanical sections, and landmines, chemical part (mechanical part 72d-17/08; sea mines 65e)
78f	Chemical and pneumatic lighters (44b); ignition strips, chemical part; pyrophoric metals and alloys (metal alloys 40b; iron alloys 18d; self-igniting incandescent bodies 4e-3)
78f	(No subdivision)