C06B

EXPLOSIVES OR THERMIC COMPOSITIONS (blasting F42D); MANUFACTURE THEREOF; USE OF SINGLE SUBSTANCES AS EXPLOSIVES (compounds in general C01, C07 or C08; [N: demolition agents based on cementitious or like materials C04B41/0009])

Definition statement

This subclass/group covers:

Explosive compositions: compositions included are those containing both a fuel and sufficient oxidiser so that, upon initiation, they are capable of undergoing a chemical reaction of a relatively high rate of speed, resulting in the production of usable force for blasting, firearms, propelling missiles, or the like.

Thermic compositions; compositions included have

- a consumable fuel component which consists of any element which is a metal, B, Si, Se or Te, or mixtures, compounds, or hydrides thereof; and
- in combination an oxidant component which is either a metal oxide or a salt (organic or inorganic) capable of yielding a metal oxide on decomposition.

Compositions which are fuels for rocket engines and intended for reaction with an oxidant, excluding air, in order to provide thrust for motive power purposes.

Compositions used for affecting the explosion environment, e.g. for neutralising the poisonous gases of explosives or for cooling the explosion gases.

Methods or apparatus for preparing or treating, e.g. working-up, the compositions mentioned above, not otherwise provided for in the IPC.

Methods of using single substances as explosives.

Compositions mentioned above, defined by structure or arrangement of the components or products.

Relationship between large subject matter areas

This subclass does not cover chemical compounds or their preparation as such, which subject matter is covered by classes C01 (inorganic chemistry), C07 (organic chemistry) and C08 (organic macromolecular compounds).

The use of explosive or thermic compositions for welding operations is classified in subclass B23K, the compositions as such used therefor are additionally classified in subclass C06B.

References relevant to classification in this subclass

This subclass/group does not cover:

Demolition agents based on cementious or like materials	C04B 412/00B
Detonating or priming devices, fuses, chemical lighters or pyrophoric compositions	C06C
Blasting	F42D
Mechanical aspects of coated explosive charges	F42B

Informative references

Attention is drawn to the following places, which may be of interest for search:

Making harmful chemical substances harmless or less harmful, by effecting a chemical change in the substances	A62D 3/00
Inflatable occupant restraints characterized by the inflation fluid source	B60R 21/26
Compounds in general	C01, C07, C08
Rocket-engine plants, i.e. plants carrying both fuel and oxidant therefor	F02K 9/00
Explosive charges	F42B
Production or use of heat not otherwise provided for	F24J

Special rules of classification within this subclass

In this subclass, methods or apparatus for preparing or treating compositions are classified according to the particular components of the compositions.

In this subclass, with the exception of group C06B 21/00, in the absence of an

indication to the contrary, a composition is classified in the last place that provides for an ingredient.

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

Methods or apparatus for preparing or treating compositions are classified accoding to the particular compositions.

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Nitrated	Compounds having a nitro group or a nitrate ester group.

C06B 21/00

Apparatus or methods for working-up explosives, e.g. forming, cutting, drying

Definition statement

This subclass/group covers:

Installations, transport means and apparatus in general

Safety measures.

References relevant to classification in this group

This subclass/group does not cover:

Manufacture of fuzes	C06C 5/08
Manufacture of blasting caps and primers	C06C 7/00
Manufacture of gas generators	C06D 5/00

Special rules of classification within this group

In the absence of an indication to the contrary a process is classified in the last appropriate place, e.g. granulation by extrusion and chopping C06B

21/0075.

C06B 21/0008

[N: Compounding the ingredient]

Definition statement

This subclass/group covers:

Mixers, mobile mixing installations and mixing processes.

C06B 21/0016

[N: the ingredient being nitrocellulose or oranitro cellulose based propellant; Working up; gelatinising; stabilising (stabilising of explosives in general C06B21/0091)]

References relevant to classification in this group

This subclass/group does not cover:

Stabilising of explosives in general	C06B 21/0091
Stabilization of for example nitrocellulose-based propellants	C06B 21/00E
Preparation of nitrocellulose	C08B 5/04, C08L 1/18
Preparation of a nitrocellulose granulate	C06B 21/0066

C06B 21/0025

[N: the ingredient being a polymer bonded explosive or thermic component]

References relevant to classification in this group

This subclass/group does not cover:

Compositions	C06B 45/10
Casting curable compositions	C06B 21/0066

C06B 21/0033

[N: Shaping the mixture]

Definition statement

This subclass/group covers:

Grinding of powders and shaping of bodies in general.

References relevant to classification in this group

This subclass/group does not cover:

Grinding of powders to defined particle sizes	C06B 21/0066
Granulation of nitrocellulose into beads	C06B 21/0066

C06B 21/0041

[N: by compression]

Definition statement

This subclass/group covers:

Compression by oppositely-rotating roller bodies.

C06B 21/005

[N: By a process involving melting at least part of the ingredients]

Definition statement

This subclass/group covers:

Sintering processes and melting point depressing agents in as far as it concerns the process.

C06B 21/0058

[N: by casting a curable composition, e.g. of the plastisol type]

References relevant to classification in this group

This subclass/group does not cover:

Polymer bounded propellants	C06B 45/10 and C06B 45/105
Crosslinking or curing agents	C06B 45/10 and C06B 45/105

C06B 21/0066

[N: by granulation, e.g. flaking]

Definition statement

This subclass/group covers:
Grinding powders to defined particle sizes

Sifting of powders for obtaining defined particle size distributions

Crystallization of materials into crystals

Cutting up strings in pieces

References relevant to classification in this group

This subclass/group does not cover:

Granulation in general	B01J 2/00 to B01J 2/30
Recrystallization of crystals	C06B 21/0091
Making of porous particles	C06B 21/0091
Porous material	C06B 23/003

C06B 21/0075

[N: by extrusion]

Definition statement

This subclass/group covers:
Screw extruders.

References relevant to classification in this group

This subclass/group does not cover:

Cutting strings in pieces	C06B 21/0066

C06B 21/0083

[N: Treatment of solid structures, e.g. for coating or impregnating with a modifier (compositions therefor C06B23/00)]

Definition statement

This subclass/group covers:

Inhitor modifiers for making inhibitor layers.

References relevant to classification in this group

This subclass/group does not cover:

Compositions of modifiers	C06B 23/00 - C06B 23/009
Compositions of coatings for propellants	C06B 45/12, F02K 9/34, F02K 9/346
Compositions of coatings of granules	C06B 45/18 - C06B 45/36

C06B 21/0091

[N: Elimination of undesirable or temporary components of an intermediate or finished product, e.g. making porous or low density products, purifying, stabilising, drying; Deactivating; Reclaiming; (porous inert particles or chemicals compounded for these purposes C06B23/00)]

Definition statement

This subclass/group covers:

Drying processes such as freeze-drying and flash-drying.

References relevant to classification in this group

This subclass/group does not cover:

Porous inert particles or chemicals compounded for these purposes	C06B 23/00

Working up of nitrocellulose	C06B 21/0016
Compositions of stabilizers	C06B 23/006
Compositions of hydrophobing, dehydrating or other agents for working up	C06B 23/009

C06B 23/00

Compositions characterised by non-explosive or non-thermic constituents [N: (in combination with specific explosives C06B25/20, C06B25/26, C06B29/04, C06B29/08, C06B31/06, C06B31/40, C06B33/02)]

Definition statement

This subclass/group covers:

Exercise munition containing small amounts of explosives.

References relevant to classification in this group

This subclass/group does not cover:

In combination with specific explosives	C06B 25/20, C06B 25/26, C06B 29/04, C06B 29/08, C06B 31/06, C06B 31/40, C06B 33/02

C06B 23/001

[N: Fillers, gelling and thickening agents (e.g. fibres), absorbents for nitroglycerine (binders, plasticisers for propellants C06B45/10; crosslinking or curing agents C06B45/10)]

References relevant to classification in this group

This subclass/group does not cover:

Binders and plasticisers for propellants	C06B 45/10

C06B 23/003

[N: Porous or hollow inert particles (preparation C06B21/0091)]

References relevant to classification in this group

This subclass/group does not cover:

Preparation	C06B 21/0091

C06B 23/005

[N: Desensitisers, phlegmatisers (coolants for mining explosives C06B23/04; deactivating C06B21/0091)]

References relevant to classification in this group

This subclass/group does not cover:

Coolants for mining explosives	C06B 23/04
Deactivating	C06B 21/0091

C06B 23/006

[N: Stabilisers (e.g. thermal stabilisers) (processes C06B21/0091; foam stabilisers C06B23/002)]

References relevant to classification in this group

This subclass/group does not cover:

Processes	C06B 21/0091
Foam stabilisers	C06B 23/002

C06B 23/02

for neutralising poisonous gases from explosives produced during blasting

References relevant to classification in this group

This subclass/group does not cover:

Mining explosives	C06B 23/04

Informative references

Attention is drawn to the following places, which may be of interest for search:

Explosives based upon chlorate comprising an alkaline nitrate	C06B 31/08

C06B 23/04

for cooling the explosion gases [N: including antifouling and flash suppressing agents]

Definition statement

This subclass/group covers:

Reducing visibility of combustion products of rockets on radar

Mining explosives.

References relevant to classification in this group

This subclass/group does not cover:

Generation of gas for vehicle safety bags	C06D 5/06

C06B 25/00

Compositions containing a nitrated organic compound

Definition statement

This subclass/group covers:

- Nitrated organic compounds not covered by subgroups
- Nitrated organic single substances used as explosive

References relevant to classification in this group

This subclass/group does not cover:

Nitrated aromatic compounds	C06B 25/04
Nitrated organic amines	C06B 25/34
Nitrated paraffins	C06B 25/36
Not nitrated single substances	C06B 43/00
Polyvinyl nitrate	C06B 45/105

C06B 25/04

the nitrated compound being an aromatic

Special rules of classification within this group

Examples of nitrated aromatic compounds are:

Trinitrophenol; picric acid

Dinitroaminophenol; picramic acid

Trinitroaniline; picramide

Trinitrotoluene; TNT

Trinitrophenoxy-ethyl nitrate

Glycerol-trinitrophenylether-dinitrate

Trinitrodihydroxybenzene; styphnic acid;trinitroresorcinol

Aromatic nitramines such as;

- Pentryl (2,4,6-trinitrophenylnitramino-ethylnitrate
- Trinitrophenylethanol; Nitramine nitrate
- Trinitrophenylmethylnitramine; Tetryl
- Hexanitrodiphenylamine

2,4,6-Trinitrophenetol; Ethylpicrate

2,4,6-Trinitrophenylmethylether; Trinitroanisol

Trinitrobenzoic acid

1,3,5-Trinitrobenzene; Trinitrobenzol

Trinitrochorbenzol; Pycrilchloride

Trinitrokresol

Trinitroxylene; TNX; 2,4,6-Trinitro-m-Xylol

Trinitronaphtaline

Dinitrotoluene

C06B 25/10

the compound being nitroglycerine

Definition statement

This subclass/group covers:

Nitroglycerine and other glycerine or glycerine derivatives being fluid nitric acid esters.

C06B 25/18

the compound being nitrocellulose present as 10% or more by weight of the total composition

Definition statement

This subclass/group covers:

Monobase or Single-Base Nitrocellulose propellants

Nitrocellulose in combination with an explosive plaasticizer or gelatinizer not covered by subgroups.

C06B 25/24

with nitroglycerine

Definition statement

This subclass/group covers:

- Blasting gelatin
- Double-base propellants

C06B 25/26

with an organic non-explosive or an organic non-thermic component

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions characterised by non-explosive or non-thermic constituents	C06B 23/00 to C06B 23/009

C06B 25/32

the compound being nitrated pentaerythritol

Definition statement

This subclass/group covers:

Composition containing nitrated pentarythritol, e.g. mixture of PETN and TNT called Pentolite

C06B 25/34

the compound being a nitrated acyclic, alicyclic or heterocyclic amine

Definition statement

This subclass/group covers:

Composition containing compound being a nitrated acyclic, alicyclic or heterocyclic amine , e. g. RDX, HMX, Nitroguanidine, HNIW; Cl-20, TEX, TNAZ, mixture of RDX and TNT called Cyclotol or Composition B

Relationship between large subject matter areas

Aromatic nitrated amines such asNitroaniline, Hexanitrodiphenylamine, Napthaline	C06B 25/04

C06B 25/36

the compound being a nitroparaffin

References relevant to classification in this group

This subclass/group does not cover:

Sprengel Explosives	C06B 47/00

C06B 27/00

Compositions containing a metal, boron, silicon, selenium or tellurium or mixtures, intercompounds or hydrides thereof, and hydrocarbons or halogenated hydrocarbons

Definition statement

This subclass/group covers:

Compositions containing metals, hydrides, hydrocarbons or halogenated hydrocarbons containing no oxygen

References relevant to classification in this group

This subclass/group does not cover:

Metals in combination with oxides	C06B 33/00 to C06B 33/14
Incendiary masses	C06C 15/00

C06B 29/00

Compositions containing an inorganic oxygen-halogen salt, e.g. chlorate, perchlorate

Definition statement

This subclass/group covers:

Compositions containing inorganic oxygen-halogen salt, e.g inorganic perchlorate

References relevant to classification in this group

This subclass/group does not cover:

Organic perchlorates	C06B 43/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions containing an inorganic nitrogen-oxygen salt with a metal oxygen-halogen salt	C06B 31/08
Compositions containing particulate metal, alloy, boron, silicon, selenium or tellurium with at least one oxygen supplying material the material being an inorganic oxygen-halogen salt	C06B 33/06
Compositions containing a metal fulminate with an inorganic oxygen-halogen salt	C06B 37/02

C06B 29/08

with an organic non-explosive or an organic non-thermic component

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions or products which are defined by structure or arrangement of component of product the organic component containing a resin	C06B 45/10

C06B 29/22

the salt being ammonium perchlorate

Definition statement

This subclass/group covers:

Ammonium perchlorate in combination with components ,which correspond to the classes C06B 29/04 to C06B 29/20

C06B 31/00

Compositions containing an inorganic nitrogen-oxygen salt

Definition statement

This subclass/group covers:

Compositions containing inorganic-oxygen salt, e.g.ADN (ammoniumdinitramide)

C06B 31/04

with carbon or sulfur

Definition statement

This subclass/group covers:

Compositions containing alkali metal or alklaine earth metal nitrate with carbon or sulfur, e.g. black powder

C06B 31/06

with an organic non-explosive or an organic non-thermic component

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions characterised by non-explosive or non-thermic constituents	C06B 23/00 to C06B 23/009

C06B 31/08

with a metal oxygen-halogen salt, e.g. inorganic chlorate, inorganic perchlorate

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions containing an inorganic oxygen-halogen salt	C06B 29/00

C06B 31/10

with carbon or sulfur

Definition statement

This subclass/group covers:
Wood dust etc. as carbon source

Sulphides as sulphur source

C06B 31/28

the salt being ammonium nitrate

Definition statement

This subclass/group covers:
Ammonium nitrate in combination with organic components

Hydroxylammonium nitrate

C06B 31/285

[N: with fuel oil, e.g. ANFO-compositions]

References relevant to classification in this group

This subclass/group does not cover:

Slurries made from ANFO and water	C06B 47/14
Mixtures of AN and a liquid other than an oil	C06B 47/00

C06B 31/30

with vegetable matter; with resin; with rubber

Definition statement

This subclass/group covers:
Compositions containing ammonium nitrate with other organic non-explosive substances, e.g vegetable matter, resin, rubber

References relevant to classification in this subgroup

This subclass/group does not cover:

Resins	C06B 45/10

C06B 33/00

Compositions containing particulate metal, alloy, boron, silicon, selenium or tellurium with at least one oxygen supplying material which is either a metal oxide or a salt, organic or inorganic, capable of yielding a metal oxide

Definition statement

This subclass/group covers:

Compositions containing metals, alloys, silicon, selenium or tellurium with at least one oxygen yielding-compound, e,g. metal oxide

References relevant to classification in this group

This subclass/group does not cover:

Boron	C06B 47/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Illuminant compositions	C06C 15/00

C06B 33/02

with an organic non-explosive or an organic non-thermic component

Definition statement

This subclass/group covers:

Composition containing metal, alloy, silicon, selenium or tellurim with an organic non-explosive or organic non-thermic component being oxygen yielding compound, e.g. a metal and a polymer

Informative references

Attention is drawn to the following places, which may be of interest for search:

Polymers	C06B 45/10

C06B 33/04

the material being an inorganic nitrogen-oxygen salt

Definition statement

This subclass/group covers:

Compositions containing metals, alloys, silicon, selenium or tellurium with inorganic nitrogen-oxygen salt

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions containing an inorganic nitrogen-oxygen salt	C06B 31/00

C06B 33/06

the material being an inorganic oxygen-halogen salt

Definition statement

This subclass/group covers:

Compositions containing metals, alloys, silicon, selenium or tellurium with inorganic oxygen-halogen salt

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions characterised by non-explosive or non-thermic constituents	C06B 23/00 to C06B 23/009

C06B 33/12

the material being two or more oxygen-yielding compounds

Definition statement

This subclass/group covers:

Eutectic mixtures

Two different oxidizers mean that they are physically separately present in the composition.

Particles of mixed oxidizer (one oxidizer containing a mixture of oxides) is not considered as a mixture.

C06B 33/14

at least one being an inorganic nitrogen-oxygen salt

C06B 35/00

Compositions containing a metal azide

References relevant to classification in this group

This subclass/group does not cover:

Ammonium azide	C06B 43/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions containing a nitrated metallo-organic compound with a metal azide	C06B 41/08

C06B 37/00

Compositions containing a metal fulminate

C06B 39/00

Compositions containing free phosphorus or a binary compound of phosphorus, except with oxygen

C06B 39/06

with free metal, alloy, boron, silicon, selenium or tellurium

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions containing a metal, boron, silicon, selenium or tellurium or	C06B 27/00

mixtures, intercompounds or hydrides thereof, and hydrocarbons or halogenated hydrocarbons	
Compositions containing particulate metal, alloy, boron, silicon, selenium or tellurium with at least one oxygen supplying material which is either a metal oxide or a salt, organic or inorganic, capable of yielding a metal oxide	C06B 33/00 - C06B 33/14

C06B 41/00

Compositions containing a nitrated metallo-organic compound

C06B 41/08

with a metal azide or a metal fulminate

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions containing a metal azide	C06B 35/00
Compositions containing a metal fulminate	C06B 37/00

C06B 43/00

compositions characterised by explosive or thermic constituents not provided for in groups C06B25/00 to C06B41/00

Definition statement

This subclass/group covers:

Fuel - air mixtures, explosive gas mixtures, organic perchlorate salts, tetrazoles etc.

C06B 45/00

Compositions or products which are defined by structure or arrangement of component of product (explosive charges of particular form or shape F42B1/00, F42B3/00)

Definition statement

This subclass/group covers:

Aspects related to structure like particle size, shapes, porosity etc.

Melt-in-oil emulsions.

References relevant to classification in this group

This subclass/group does not cover:

Manufacture,	C06B 21/0091
Liquids and gels	C06B 47/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Metal fibres	C06B 23/001
Explosive charges of particular form or shape	F42B 1/00, F42B 3/00
Shape or structure of solid propellant charges for rocket-engine plants	F02K 9/10

C06B 45/04

comprising solid particles dispersed in solid solution or matrix [N: not used for explosives where the matrix consists essentially of nitrated carbohydrates or a low molecular organic explosive]

References relevant to classification in this group

This subclass/group does not cover:

Explosives where the matrix consists essentially of nitrated carbohydrates or a low molecular organic explosive]	C06B 29/16, C06B 31/12, C06B 31/32, C06B 33/08

C06B 45/10

the organic component containing a resin

Definition statement

This subclass/group covers:

Compositions comprising solid particles dipsersed in solid solution or matrix comprising organic component containing a resin, e.g. plasticizers, crosslinkers, polymer catalysts, polymers being present as a matrix forming component and not as particules.

Relationship between large subject matter areas

Polymers per se are classified in C08

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions containing an inorganic oxygen-halogen salt with an organic non-explosive or an organic non-thermic component	C06B 29/08
Compositions containing ammonium nitrate with resin; with rubber	C06B 31/30

C06B 45/12

having contiguous layers or zones

Definition statement

This subclass/group covers:

This group covers compositions or products defined by having contiguous layers or zones, e.g. :

- Layer structure in a product
- Layers on propellant charges, which are non-explosive
- Adhesive compositions

References relevant to classification in this group

This subclass/group does not cover:

Blasting cartridges, i.e. case and explosive	F42B 3/00
Surface treatment of cartridges or cartridge cases	F42B 33/14

Informative references

Attention is drawn to the following places, which may be of interest for search:

Charging rocket engines with solid propellants; Methods or apparatus specially adapted for working solid propellant charges	F02K 9/24
Rocket- engine plants	F02K 9/00
Casings; Combustion chambers; Liners thereof	F02K 9/34

C06B 45/18

comprising a coated component (particles dispersed in a matrix C06B45/04 ; coated explosive charges F42B)

Definition statement

This subclass/group covers:

Compositions comprising coated component base containing organic explosive or organic thermic component, coated compoenent base containing inorganic explosive or inorganic thermic component or coated component base containing both organic explosive or thermic component and inorganic explosive or thermic component

References relevant to classification in this group

This subclass/group does not cover:

Particles dispersed in a matrix	C06B 45/04
Coated explosive charges	F42B

C06B 45/30

the component base containing an inorganic explosive or an inorganic thermic component

Definition statement

This subclass/group covers:

Coated metal particles.

C06B 47/00

Compositions in which the components are separately stored until the moment of burning or explosion, e.g. "Sprengel"-type explosives; Suspensions of solid component in a normally non-explosive liquid phase, including a thickened aqueous phase [N: This group also covers emulsion type explosives in which a solid component is not compulsory]

Definition statement

This subclass/group covers:

Stored components, e.g. components for bipropellants, stored until the moment of burning or explosion

Emulsion type explosives in which a solid component is not compulsory

Water-ol-oil emulsions mixed with granules

References relevant to classification in this group

This subclass/group does not cover:

Melt-in-oil emulsions	C06B 45/00, C06B 47/145
Water-in-oil emulsins	C06B 47/145

Informative references

Attention is drawn to the following places, which may be of interest for search:

ANFO	C06B 31/285
Nitromethane	C06B 25/36

Generation of pressure gas by reaction of two or more liquids	C06D 5/09
Generation of pressure gas by reaction of solids with liquids	C06D 5/10

C06B 47/06

a component being a liquefied normally gaseous material supplying oxygen

Special rules of classification within this group

C06B 47/04 takes precedence

C06B 47/10

a component containing free boron, an organic borane or a binary compound of boron, except with oxygen

References relevant to classification in this group

This subclass/group does not cover:

Binary compounds of boron with oxygen	

C06B 47/145

[N: Water in oil emulsion type explosives in which a carbonaceous fuel forms the continuous phase]

Definition statement

This subclass/group covers:

Water-in-oil emulsions mixed with granules

Melt-in-oil emulsions

C06B 49/00

Use of single substances as explosives

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compositions characterised by explosive or thermos constituents not provided for in groups C06B 25/00 to C06B 41/00	C06B 43/00