

CPC**COOPERATIVE PATENT CLASSIFICATION****D01F****CHEMICAL FEATURES IN THE MANUFACTURE OF ARTIFICIAL FILAMENTS, THREADS, FIBRES, BRISTLES OR RIBBONS; APPARATUS SPECIALLY ADAPTED FOR THE MANUFACTURE OF CARBON FILAMENTS****D01F 1/00****General methods for the manufacture of artificial filaments or the like**

- D01F 1/02 . Addition of substances to the spinning solution or to the melt ([addition of substances to viscose D01F 2/08 to D01F 2/20](#))
- D01F 1/04 .. Pigments
- D01F 1/06 .. Dyes
- D01F 1/07 .. for making fire- or flame-proof filaments
- D01F 1/08 .. for forming hollow filaments
- D01F 1/09 .. for making electroconductive or anti-static filaments
- D01F 1/10 .. Other agents for modifying properties
- D01F 1/103 ... { Agents inhibiting growth of micro-organisms }
- D01F 1/106 ... { Radiation shielding agents, e.g. absorbing, reflecting agents }

D01F 2/00**Monocomponent artificial filaments or the like of cellulose or cellulose derivatives; Manufacture thereof**

- D01F 2/02 . from solutions of cellulose in acids, bases or salts
- D01F 2/04 .. from cuprammonium solutions
- D01F 2/06 . from viscose ([preparation of alkali cellulose C08B](#))
- D01F 2/08 .. Composition of the spinning solution or the bath ([preparing or dissolving cellulose xanthate C08B](#))
- D01F 2/10 ... Addition to the spinning solution or spinning bath of substances which exert their effect equally well in either
- D01F 2/12 ... Addition of delustering agents to the spinning solution
- D01F 2/14 Addition of pigments
- D01F 2/16 ... Addition of dyes to the spinning solution
- D01F 2/18 ... Addition to the spinning solution of substances to influence ripening
- D01F 2/20 ... for the manufacture of hollow threads
- D01F 2/22 .. by the dry spinning process
- D01F 2/24 . from cellulose derivatives
- D01F 2/26 .. from nitrocellulose
- D01F 2/28 .. from organic cellulose esters or ethers, e.g. cellulose acetate
- D01F 2/30 ... by the dry spinning process

D01F 4/00 Monocomponent artificial filaments or the like of proteins; Manufacture thereof

- D01F 4/02 . from fibroin
- D01F 4/04 . from casein
- D01F 4/06 . from globulins, e.g. groundnut protein

D01F 6/00 Monocomponent artificial filaments or the like of synthetic polymers; Manufacture thereof

- D01F 6/02 . from homopolymers obtained by reactions only involving carbon-to-carbon unsaturated bonds
 - D01F 6/04 . . from polyolefins
 - D01F 6/06 . . . from polypropylene
 - D01F 6/08 . . from polymers of halogenated hydrocarbons
 - D01F 6/10 . . . from polyvinyl chloride or polyvinylidene chloride
 - D01F 6/12 . . . from polymers of fluorinated hydrocarbons
 - D01F 6/14 . . from polymers of unsaturated alcohols, e.g. polyvinyl alcohol, or of their acetals or ketals
 - D01F 6/16 . . from polymers of unsaturated carboxylic acids or unsaturated organic esters, e.g. polyacrylic esters, polyvinyl acetate
 - D01F 6/18 . . from polymers of unsaturated nitriles, e.g. polyacrylonitrile, polyvinylidene cyanide
 - D01F 6/20 . . from polymers of cyclic compounds with one carbon-to-carbon double bond in the side chain
 - D01F 6/22 . . . from polystyrene
 - D01F 6/24 . . from polymers of aliphatic compounds with more than one carbon-to-carbon double bond
 - D01F 6/26 . . from other polymers
- D01F 6/28 . from copolymers obtained by reactions only involving carbon-to-carbon unsaturated bonds

NOTE

For the purposes of groups [D01F 6/30](#) to [D01F 6/96](#), the percentage for determining the major constituent is expressed in mole percent.

- D01F 6/30 . . comprising olefins as the major constituent
- D01F 6/32 . . comprising halogenated hydrocarbons as the major constituent
- D01F 6/34 . . comprising unsaturated alcohols, acetals or ketals as the major constituent
- D01F 6/36 . . comprising unsaturated carboxylic acids or unsaturated organic esters as the major constituent
- D01F 6/38 . . comprising unsaturated nitriles as the major constituent
- D01F 6/40 . . Modacrylic fibres, i.e. containing 35 to 85% acrylonitrile

- D01F 6/42 .. comprising cyclic compounds containing one carbon-to-carbon double bond in the side chain as major constituent
- D01F 6/44 . from mixtures of polymers obtained by reactions only involving carbon-to-carbon unsaturated bonds as major constituent with other polymers or low-molecular-weight compounds
- D01F 6/46 .. of polyolefins
- D01F 6/48 .. of polymers of halogenated hydrocarbons
- D01F 6/50 .. of polyalcohols, polyacetals or polyketals
- D01F 6/52 .. of polymers of unsaturated carboxylic acids or unsaturated esters
- D01F 6/54 .. of polymers of unsaturated nitriles
- D01F 6/56 .. of polymers of cyclic compounds with one carbon-to-carbon double bond in the side chain
- D01F 6/58 . from homopolycondensation products
- D01F 6/60 .. from polyamides (from polyamino acids or polypeptides [D01F 6/68](#))
- D01F 6/605 ... { from aromatic polyamides }
- D01F 6/62 .. from polyesters
- D01F 6/625 ... { derived from hydroxy-carboxylic acids, e.g. lactones }
- D01F 6/64 ... from polycarbonates
- D01F 6/66 .. from polyethers
- D01F 6/665 ... { from polyetherketones, e.g. PEEK }
- D01F 6/68 .. from polyaminoacids or polypeptides
- D01F 6/70 .. from polyurethanes
- D01F 6/72 .. from polyureas
- D01F 6/74 .. from polycondensates of cyclic compounds, e.g. polyimides, polybenzimidazoles
- D01F 6/76 .. from other polycondensation products
- D01F 6/765 ... { from polyarylene sulfides }
- D01F 6/78 . from copolycondensation products
- D01F 6/80 .. from copolyamides
- D01F 6/805 ... { from aromatic copolyamides }
- D01F 6/82 .. from polyester amides or polyether amides
- D01F 6/84 .. from copolyesters
- D01F 6/86 .. from polyetheresters
- D01F 6/88 . from mixtures of polycondensation products as major constituent with other polymers or low-molecular-weight compounds
- D01F 6/90 .. of polyamides
- D01F 6/905 ... { of aromatic polyamides }
- D01F 6/92 .. of polyesters
- D01F 6/94 .. of other polycondensation products

- D01F 6/96
 - . from other synthetic polymers
- D01F 8/00** **Conjugated, i.e. bi- or multi-component, artificial filaments or the like; Manufacture thereof**
- D01F 8/02
 - . from cellulose, cellulose derivatives, or proteins
- D01F 8/04
 - . from synthetic polymers
- D01F 8/06
 - .. with at least one polyolefin as constituent
- D01F 8/08
 - .. with at least one polyacrylonitrile as constituent
- D01F 8/10
 - .. with at least one other macromolecular compound obtained by reactions only involving carbon-to-carbon unsaturated bonds as constituent
- D01F 8/12
 - .. with at least one polyamide as constituent
- D01F 8/14
 - .. with at least one polyester as constituent
- D01F 8/16
 - .. with at least one other macromolecular compound obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds as constituent
- D01F 8/18
 - . from other substances
- D01F 9/00** **Artificial filaments or the like of other substances; Manufacture thereof; Apparatus specially adapted for the manufacture of carbon filaments**
- D01F 9/02
 - . of reaction products of rubber with acids or acid anhydrides, e.g. sulfur dioxide
- D01F 9/04
 - . of alginates
- D01F 9/08
 - . of inorganic material (from softened glass, minerals or slags [C03B 37/00](#); { obtaining ceramic fibres [C04B 35/62227](#) }; incandescent bodies [F21H](#), [H01K 1/02](#), [H01K 3/02](#))
- D01F 9/10
 - .. by decomposition of organic substances ([D01F 9/12](#) takes precedence)
- D01F 9/12
 - .. Carbon filaments; Apparatus specially adapted for the manufacture thereof {(with fullerene structure, e.g. carbon nanotubes [C01B 31/0206](#))}
- D01F 9/127
 - ... by thermal decomposition of hydrocarbon gases or vapours { or other carbon-containing compounds in the form of gas or vapour, e.g. carbon monoxide, alcohols }
- D01F 9/1271
 - { Alkanes or cycloalkanes }
- D01F 9/1272
 - { Methane }
- D01F 9/1273
 - { Alkenes, alkynes }
- D01F 9/1274
 - { Butadiene }
- D01F 9/1275
 - { Acetylene }
- D01F 9/1276
 - { Aromatics, e.g. toluene }
- D01F 9/1277
 - { Other organic compounds }
- D01F 9/1278
 - { Carbon monoxide }
- D01F 9/133
 - Apparatus therefor
- D01F 9/14
 - ... by decomposition of organic filaments

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|-------------------|-------|--|
| D01F 9/145 | | from pitch or distillation residues |
| D01F 9/15 | | from coal pitch |
| D01F 9/155 | | from petroleum pitch |
| D01F 9/16 | .... | from products of vegetable origin or derivatives thereof, e.g. from cellulose acetate (D01F 9/18 takes precedence) |
| D01F 9/17 | ..... | from lignin |
| D01F 9/18 | .... | from proteins, e.g. from wool |
| D01F 9/20 | .... | from polyaddition, polycondensation or polymerisation products (D01F 9/145 , D01F 9/16 , D01F 9/18 take precedence) |
| D01F 9/21 | ..... | from macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds |
| D01F 9/22 | ..... | from polyacrylonitriles |
| D01F 9/225 | ..... | { from stabilised polyacrylonitriles } |
| D01F 9/24 | .... | from macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds |
| D01F 9/245 | ..... | { from polyurethanes } |
| D01F 9/26 | ..... | from polyesters |
| D01F 9/28 | ..... | from polyamides |
| D01F 9/30 | ..... | from aromatic polyamides |
| D01F 9/32 | .... | Apparatus therefor |
| D01F 9/322 | ..... | { for manufacturing filaments from pitch } |
| D01F 9/324 | ..... | { for manufacturing filaments from products of vegetable origin } |
| D01F 9/326 | ..... | { for manufacturing filaments from proteins } |
| D01F 9/328 | ..... | { for manufacturing filaments from polyaddition, polycondensation, or polymerisation products } |
| D01F 11/00 | | Chemical after-treatment of artificial filaments or the like during manufacture ({ of artificial filaments from softened glass, minerals or slags C03C ; from ceramics C04B }; finishing D06M) |
| D01F 11/02 | . | of cellulose, cellulose derivatives, or proteins |
| D01F 11/04 | . | of synthetic polymers |
| D01F 11/06 | .. | of macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds |
| D01F 11/08 | .. | of macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds |
| D01F 11/10 | . | of carbon |
| D01F 11/12 | .. | with inorganic substances { Intercalation } |
| D01F 11/121 | ... | { Halogen, halogenic acids or their salts } |
| D01F 11/122 | ... | { Oxygen, oxygen-generating compounds (anode oxidising D01F 11/16) } |
| D01F 11/123 | ... | { Oxides } |
| D01F 11/124 | ... | { Boron, borides, boron nitrides } |

- D01F 11/125 . . . { Carbon }
- D01F 11/126 . . . { Carbides (boron-comprising compounds [D01F 11/124](#); nitrogen carbide [D01F 11/128](#))}
- D01F 11/127 . . . { Metals (metal depositing by electrolysis [D01F 11/16](#); metal alloys with reinforcing carbon fibres [C22C 49/14](#))}
- D01F 11/128 . . . { Nitrides, nitrogen carbides (nitrogen borides [D01F 11/124](#))}
- D01F 11/129 . . . { Intercalated carbon- or graphite fibres }
- D01F 11/14 . . with organic compounds, e.g. macromolecular compounds
- D01F 11/16 . . by physicochemical methods

- D01F 13/00** **Recovery of starting material, waste material or solvents during the manufacture of artificial filaments or the like**

- D01F 13/02 . of cellulose, cellulose derivatives or proteins {(recovery of sodium sulfate from coagulation baths [C01D 5/006](#))}

- D01F 13/04 . of synthetic polymers