

**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 - 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](#) - [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
- 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 <a href="#">D01F 11/16</a> )}
D01F 11/123	. . . {Oxides}
D01F 11/124	. . . {Boron, borides, boron nitrides}
D01F 11/125	. . . {Carbon}
D01F 11/126	. . . {Carbides (boron-comprising compounds <a href="#">D01F 11/124</a> ; nitrogen carbide <a href="#">D01F 11/128</a> )}
D01F 11/127	. . . {Metals (metal depositing by electrolysis <a href="#">D01F 11/16</a> ; metal alloys with reinforcing carbon fibres <a href="#">C22C 49/14</a> )}
D01F 11/128	. . . {Nitrides, nitrogen carbides (nitrogen borides <a href="#">D01F 11/124</a> )}
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 <a href="#">C01D 5/006</a> )}
D01F 13/04	. of synthetic polymers