CPC COOPERATIVE PATENT CLASSIFICATION

C CHEMISTRY; METALLURGY

(NOTES omitted)

CHEMISTRY

C08 ORGANIC MACROMOLECULAR COMPOUNDS; THEIR PREPARATION OR CHEMICAL WORKING-UP; COMPOSITIONS BASED THEREON

C08B POLYSACCHARIDES; DERIVATIVES THEREOF (polysaccharides containing less than six saccharide radicals attached to each other by glycosidic linkages C07H; fermentation or enzyme-using processes C12P 19/00; sugar industry C13; production of cellulose D21)

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

C08B 37/02	covered by	C08B 37/0021
C08B 37/04	covered by	C08B 37/0084
C08B 37/06	covered by	C08B 37/0045
C08B 37/08	covered by	C08B 37/003 (chitin), C08B 37/0072 (hyaluronic acid) and C08B 37/0069 (chondroitin sulfate)
C08B 37/10	covered by	C08B 37/0075
C08B 37/16	covered by	C08B 37/0012

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

Preparation

1/00 Preparatory treatment of cellulose for making derivatives thereof {, e.g. pre-treatment, pre-soaking, activation}

1/003 . {Preparation of cellulose solutions, i.e. dopes, with different possible solvents, e.g. ionic liquids (solutions used in the manufacture of monocomponent artificial filaments or cellulose or derivatives thereof D01F 2/02)}

1/006 . {Preparation of cuprammonium cellulose solutions}

1/02 . Rendering cellulose suitable for esterification {(esterification per se, C08B 3/00, C08B 5/00, C08B 7/00 or C08B 9/00)}

1/04 . . for the preparation of cellulose nitrate

1/06 . Rendering cellulose suitable for etherification {(etherification per se C08B 11/00)}

1/08 . Alkali cellulose

1/10 . . Apparatus for the preparation of alkali cellulose

1/12 . . . Steeping devices

1/14 . . . Ripening devices

3/00 Preparation of cellulose esters of organic acids {(rendering cellulose suitable for esterification C08B 1/02)}

3/02 . Catalysts used for the esterification

3/04 . Cellulose formate

3/06 . Cellulose acetate {, e.g. mono-acetate, di-acetate or tri-acetate}

3/08 . of monobasic organic acids with three or more carbon atoms, {e.g. propionate or butyrate}

3/10 . . with five or more carbon-atoms, {e.g. valerate}

3/12 . of polybasic organic acids

3/14 . in which the organic acid residue contains substituents, e.g. NH_2, Cl

3/16 . Preparation of mixed organic cellulose esters {, e.g. cellulose aceto-formate or cellulose aceto-propionate}

3/18 . . Aceto-butyrates

3/20 . Esterification with maintenance of the fibrous structure of the cellulose (surface esterification of textiles D06M 13/00)

3/22 . Post-esterification treatments, including purification

3/24 . . Hydrolysis or ripening

3/26 . . Isolation of the cellulose ester

3/28 . . . by precipitation

3/30 . . Stabilising (by addition of stabilisers C08K)

5/00 Preparation of cellulose esters of inorganic acids {, e.g. phosphates (rendering cellulose suitable for esterification C08B 1/02)}

5/02 . Cellulose nitrate {, i.e. nitrocellulose (rendering cellulose suitable for the preparation of cellulose nitrate C08B 1/04)}

5/04 . . Post-esterification treatments {, e.g. densification of powders}, including purification

5/06 . . . Isolation of the cellulose nitrate

5/08 . . . Stabilisation (by addition of stabilisers C08K); {Post-treatment, e.g. phlegmatisation}

5/10 . . . Reducing the viscosity

5/12 . . . Replacing the water by organic liquids

5/14 . Cellulose sulfate

7/00 **Preparation of cellulose esters of both organic and inorganic acids {**(rendering cellulose suitable for esterification C08B 1/02)**}**

9/00 **Cellulose xanthate; Viscose {**(formation of films C08J 5/18; formation of fibres D01F; rendering cellulose suitable for esterification C08B 1/02)**}**

9/02 . Sulfidisers; Dissolvers

9/04 . Continuous processes

9/06 . Single-stage processes

11/00 **Preparation of cellulose ethers {**(rendering cellulose suitable for etherification C08B 1/06)**}**

11/02 . Alkyl or cycloalkyl ethers

11/04 . . with substituted hydrocarbon radicals

11/06 . . . with halogen-substituted hydrocarbon radials

11/08 . . . with hydroxylated hydrocarbon radicals; Esters, ethers, or acetals thereof

11/10 . . . substituted with acid radicals

11/12 . . . . substituted with carboxylic radicals {, e.g. carboxymethylcellulose [CMC]}

11/14 . . . with nitrogen-containing groups

11/145 . . . . with basic nitrogen, e.g. aminoalkyl ethers

11/15 . . . . with carbamoyl groups {, i.e. -CO-NH_2}

11/155 . . . . with cyano groups, e.g. cyanoalkyl ethers

11/16 . Aryl or aralkyl ethers

11/18 . . with substituted hydrocarbon radicals

11/187 . with olefinic unsaturated groups

11/193 . Mixed ethers, i.e. ethers with two or more different etherifying groups

11/20 . Post-etherification treatments of chemical or physical type, {e.g. mixed etherification in two steps}, including purification

11/22 . . Isolation

13/00 **Preparation of cellulose ether-esters**

13/02 . Cellulose ether xanthates

15/00 **Preparation of other cellulose derivatives or modified cellulose {, e.g. complexes}**

15/005 . {Crosslinking of cellulose derivatives}

15/02 . Oxycellulose; Hydrocellulose; {Cellulosehydrate, e.g. microcrystalline cellulose}

15/04 . . Carboxycellulose, e.g. prepared by oxidation with nitrogen dioxide

15/05 . Derivatives containing elements other than carbon, hydrogen, oxygen, halogens or sulfur (esters or phosphorous acids C08B 5/00)

15/06 . . containing nitrogen {, e.g. carbamates}

15/08 . Fractionation of cellulose, e.g. separation of cellulose crystallites

15/10 . Crosslinking of cellulose

16/00 **Regeneration of cellulose**

17/00 **Apparatus for esterification or etherification of cellulose**

17/02 . for making organic esters of cellulose

17/04 . for making cellulose nitrate

17/06 . for making cellulose ethers

30/00 **Preparation of starch, degraded or non-chemically modified starch, amylose, or amylopectin**

30/02 . Preparatory treatment, e.g. crushing of raw materials {or steeping process (machines for preliminary washing A23N)}

30/04 . Extraction or purification

30/042 . . {from cereals or grains}

30/044 . . . {from corn or maize}

30/046 . . . {from wheat}

30/048 . . {from potatoes}

30/06 . Drying; Forming

30/08 . Concentration of starch suspensions

30/10 . Working-up residues from the starch extraction {, e.g. potato peel or steeping water}, including pressing water from the starch-extracted material

30/12 . Degraded, {destructured} or non-chemically modified starch {, e.g. mechanically, enzymatically or by irradiation; Bleaching of starch (preparation of chemical derivatives of starch C08B 31/00)}

30/14 . . Cold water dispersible or pregelatinised starch

30/16 . . Apparatus therefor

30/18 . . Dextrin {, e.g. yellow canari, white dextrin, amylodextrin or maltodextrin; Methods of depolymerisation, e.g. by irradiation or mechanically}

30/20 . Amylose or amylopectin (chemical derivatives thereof C08B 33/00, C08B 35/00)

31/00 **Preparation of derivatives of starch** (derivatives of amylose C08B 33/00; derivatives of amylopectin C08B 35/00)

31/003 . {Crosslinking of starch}

31/006 . . {Crosslinking of derivatives of starch}

31/02 . Esters

31/04 . . of organic acids {, e.g. alkenyl-succinated starch}

31/06 . . of inorganic acids

31/063 . . . {Starch sulfates}

31/066 . . . {Starch phosphates, e.g. phosphorylated starch}

31/08 . Ethers

31/10 . . Alkyl or cycloalkyl ethers

31/12 . . having alkyl or cycloalkyl radicals substituted by heteroatoms, {e.g. hydroxyalkyl or carboxyalkyl starch}

31/125 . . . {having a substituent containing at least one nitrogen atom, e.g. cationic starch}

31/14 . . Aryl or aralkyl ethers

31/16 . Ether-esters

31/18 . Oxidised starch

31/185 . . {Derivatives of oxidised starch, e.g. crosslinked oxidised starch}

33/00 **Preparation of derivatives of amylose**

33/02 . Esters

33/04 . Ethers

33/06 . Ether-esters

33/08 . Oxidised amylose

35/00 **Preparation of derivatives of amylopectin**

35/02 . Esters

35/04 . Ethers

35/06 . Ether-esters

35/08 . Oxidised amylopectin

37/00 **Preparation of polysaccharides not provided for in groups C08B 1/00 - C08B 35/00; Derivatives thereof** (cellulose D21; {microbiological processes C12P})

37/0003 . {General processes for their isolation or fractionation, e.g. purification or extraction from biomass}

37/0006 . {Homoglycans, i.e. polysaccharides having a main chain consisting of one single sugar, e.g. colominic acid}

37/0009 . . {alpha-D-Glucans, e.g. polydextrose, alternan, glycogen; (alpha-1,4)(alpha-1,6)-D-Glucans; (alpha-1,3)(alpha-1,4)-D-Glucans, e.g. isolichenan or nigeran; (alpha-1,4)-D-Glucans; (alpha-1,3)-D-Glucans, e.g. pseudonigeran; Derivatives thereof}

37/0012 . . . {Cyclodextrin [CD], e.g. cycle with 6 units (alpha), with 7 units (beta) and with 8 units (gamma), large-ring cyclodextrin or cycloamylose with 9 units or more; Derivatives thereof}

37/0015 . . . . {Inclusion compounds, i.e. host-guest compounds, e.g. polyrotaxanes}

37/0018 . . . {Pullulan, i.e. (alpha-1,4)(alpha-1,6)-D-glucan; Derivatives thereof}

37/0021 . . . {Dextran, i.e. (alpha-1,4)-D-glucan; Derivatives thereof, e.g. Sephadex, i.e. crosslinked dextran}

37/0024 . . {beta-D-Glucans; (beta-1,3)-D-Glucans, e.g. paramylon, coriolan, sclerotan, pachyman, callose, scleroglucan, schizophyllan, laminaran, lentinan or curdlan; (beta-1,6)-D-Glucans, e.g. pustulan; (beta-1,4)-D-Glucans; (beta-1,3) (beta-1,4)-D-Glucans, e.g. lichenan; Derivatives thereof}

37/0027 . . . {2-Acetamido-2-deoxy-beta-glucans; Derivatives thereof}

37/003 . . . . {Chitin, i.e. 2-acetamido-2-deoxy-(beta-1,4)-D-glucan or N-acetyl-beta-1,4-D-glucosamine; Chitosan, i.e. deacetylated product of chitin or (beta-1,4)-D-glucosamine; Derivatives thereof}

37/0033 . . . {Xanthan, i.e. D-glucose, D-mannose and D-glucuronic acid units, saubstituted with acetate and pyruvate, with a main chain of (beta-1,4)-D-glucose units; Derivatives thereof}

37/0036 . . {Galactans; Derivatives thereof}

37/0039 . . . {Agar; Agarose, i.e. D-galactose, 3,6-anhydro-D-galactose, methylated, sulfated, e.g. from the red algae Gelidium and Gracilaria; Agaropectin; Derivatives thereof, e.g. Sepharose, i.e. crosslinked agarose}

37/0042 . . . {Carragenan or carragen, i.e. D-galactose and 3,6-anhydro-D-galactose, both partially sulfated, e.g. from red algae Chondrus crispus or Gigantia stellata; kappa-Carragenan; iota-Carragenan; lambda-Carragenan; Derivatives thereof}

37/0045 . . {alpha-D-Galacturonans, e.g. methyl ester of (alpha-1,4)-linked D-galacturonic acid units, i.e. pectin, or hydrolysis product of methyl ester of alpha-1,4-linked D-galacturonic acid units, i.e. pectinic acid; Derivatives thereof}

37/0048 . . . {Processes of extraction from organic materials}

37/0051 . . {beta-D-Fructofuranans, e.g. beta-2,6-D-fructofuranan, i.e. levan; Derivatives thereof}

37/0054 . . . {Inulin, i.e. beta-2,1-D-fructofuranan; Derivatives thereof}

37/0057 . . {beta-D-Xylans, i.e. xylosaccharide, e.g. arabinoxylan, arabinofuronan, pentosans; (beta-1,3)(beta-1,4)-D-Xylans, e.g. rhodymenans; Hemicellulose; Derivatives thereof}

37/006 . {Heteroglycans, i.e. polysaccharides having more than one sugar residue in the main chain in either alternating or less regular sequence; Gellans; Succinoglycans; Arabinogalactans; Tragacanth or gum tragacanth or traganth from Astragalus; Gum Karaya from Sterculia urens; Gum Ghatti from Anogeissus latifolia; Derivatives thereof}

37/0063 . . {Glycosaminoglycans or mucopolysaccharides, e.g. keratan sulfate; Derivatives thereof, e.g. fucoidan}

37/0066 . . . {Isolation or extraction of proteoglycans from organs}

37/0069 . . . {Chondroitin-4-sulfate, i.e. chondroitin sulfate A; Dermatan sulfate, i.e. chondroitin sulfate B or beta-heparin; Chondroitin-6-sulfate, i.e. chondroitin sulfate C; Derivatives thereof}

37/0072 . . . {Hyaluronic acid, i.e. HA or hyaluronan; Derivatives thereof, e.g. crosslinked hyaluronic acid (hylan) or hyaluronates}

37/0075 . . . {Heparin; Heparan sulfate; Derivatives thereof, e.g. heparosan; Purification or extraction methods thereof}

37/0078 . . . . {Degradation products}

37/0081 . . . . {Reaction with amino acids, peptides, or proteins}

37/0084 . . {Guluromannuronans, e.g. alginic acid, i.e. D-mannuronic acid and D-guluronic acid units linked with alternating alpha- and beta-1,4-glycosidic bonds; Derivatives thereof, e.g. alginates}

37/0087 . . {Glucomannans or galactomannans; Tara or tara gum, i.e. D-mannose and D-galactose units, e.g. from Cesalpinia spinosa; Tamarind gum, i.e. D-galactose, D-glucose and D-xylose units, e.g. from Tamarindus indica; Gum Arabic, i.e. L-arabinose, L-rhamnose, D-galactose and D-glucuronic acid units, e.g. from Acacia Senegal or Acacia Seyal; Derivatives thereof}

37/009 . . . {Konjac gum or konjac mannan, i.e. beta-D-glucose and beta-D-mannose units linked by 1,4 bonds, e.g. from Amorphophallus species; Derivatives thereof}

37/0093 . . . {Locust bean gum, i.e. carob bean gum, with (beta-1,4)-D-mannose units in the main chain branched with D-galactose units in (alpha-1,6), e.g. from the seeds of carob tree or Ceratonia siliqua; Derivatives thereof}

37/0096 . . . {Guar, guar gum, guar flour, guaran, i.e. (beta-1,4) linked D-mannose units in the main chain branched with D-galactose units in (alpha-1,6), e.g. from Cyamopsis Tetragonolobus; Derivatives thereof}

37/12 . Agar-agar; Derivatives thereof (not used)

37/125 . . {Other polysaccharides of algae such as carragenan (not used)}

37/14 . Hemicellulose; Derivatives thereof (not used)

37/143 . . {composed by pentose units, e.g. xylose, xylan, pentosans, arabinose (not used)}

37/146 . . {composed by gluco and/or galactomannans, for example guar gum, locust bean gum (not used)}

37/18 . Reserve carbohydrates, e.g. glycogen, inulin, laminarin; Derivatives thereof (not used)