

CPC COOPERATIVE PATENT CLASSIFICATION

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](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

C08B 37/06	covered by	C08B 37/0045
C08B 37/10	covered by	C08B 37/0075
C08B 37/12	covered by	C08B 37/0039

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 3 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. NH₂, Cl
- 3/16 . Preparation of mixed organic cellulose esters, {e.g. cellulose aceto-formate or cellulose aceto-propionate}
- 3/18 . . Aceto-butyrate
- 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 radicals
- 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-NH₂}
- 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 . Oxy-cellulose; 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, amylopectin 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, substituted 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, arabinofuranan, 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 . . {Glucomannuronans, 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)