

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**C08B 1/00**

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

C08B 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](#))}

C08B 1/006

- {Preparation of cuprammonium cellulose solutions}

C08B 1/02

- Rendering cellulose suitable for esterification {(esterification per se, [C08B 3/00](#), [C08B 5/00](#), [C08B 7/00](#) or [C08B 9/00](#))}

C08B 1/04

- . for the preparation of cellulose nitrate

C08B 1/06

- Rendering cellulose suitable for etherification {(etherification per se [C08B 11/00](#))}

C08B 1/08

- Alkali cellulose

C08B 1/10

- . Apparatus for the preparation of alkali cellulose

C08B 1/12

- . . Steeping devices

C08B 1/14

- . . Ripening devices

C08B 3/00

Preparation of cellulose esters of organic acids {(rendering cellulose suitable for esterification [C08B 1/02](#))}

C08B 3/02

- Catalysts used for the esterification

C08B 3/04

- Cellulose formate

C08B 3/06

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

C08B 3/08

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

C08B 3/10

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

C08B 3/12

- of polybasic organic acids

C08B 3/14

- in which the organic acid residue contains substituents, e.g. NH₂, Cl

- C08B 3/16 . Preparation of mixed organic cellulose esters, {e.g. cellulose aceto-formate or cellulose aceto-propionate}
- C08B 3/18 . . Aceto-butyrate
- C08B 3/20 . Esterification with maintenance of the fibrous structure of the cellulose (surface esterification of textiles [D06M 13/00](#))
- C08B 3/22 . Post-esterification treatments, including purification
- C08B 3/24 . . Hydrolysis or ripening
- C08B 3/26 . . Isolation of the cellulose ester
- C08B 3/28 . . . by precipitation
- C08B 3/30 . . Stabilising (by addition of stabilisers [C08K](#))

- C08B 5/00** **Preparation of cellulose esters of inorganic acids, {e.g. phosphates (rendering cellulose suitable for esterification [C08B 1/02](#))}**
- C08B 5/02 . Cellulose nitrate, {i.e. nitrocellulose (rendering cellulose suitable for the preparation of cellulose nitrate [C08B 1/04](#))}
- C08B 5/04 . . Post-esterification treatments, {e.g. densification of powders}, including purification
- C08B 5/06 . . . Isolation of the cellulose nitrate
- C08B 5/08 . . . Stabilisation (by addition of stabilisers [C08K](#)); {Post-treatment, e.g. phlegmatisation}
- C08B 5/10 . . . Reducing the viscosity
- C08B 5/12 . . . Replacing the water by organic liquids
- C08B 5/14 . Cellulose sulfate

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

- C08B 9/00** **Cellulose xanthate; Viscose {(formation of films [C08J 5/18](#); formation of fibres [D01E](#); rendering cellulose suitable for esterification [C08B 1/02](#))}**
- C08B 9/02 . Sulfidisers; Dissolvers
- C08B 9/04 . Continuous processes
- C08B 9/06 . Single-stage processes

- C08B 11/00** **Preparation of cellulose ethers {(rendering cellulose suitable for etherification [C08B 1/06](#))}**
- C08B 11/02 . Alkyl or cycloalkyl ethers
- C08B 11/04 . . with substituted hydrocarbon radicals
- C08B 11/06 . . . with halogen-substituted hydrocarbon radicals
- C08B 11/08 . . . with hydroxylated hydrocarbon radicals; Esters, ethers, or acetals thereof
- C08B 11/10 . . . substituted with acid radicals
- C08B 11/12 substituted with carboxylic radicals, {e.g. carboxymethylcellulose [CMC]}
- C08B 11/14 . . . with nitrogen-containing groups
- C08B 11/145 with basic nitrogen, e.g. aminoalkyl ethers

- C08B 11/15 with carbamoyl groups, {i.e. -CO-NH₂}
- C08B 11/155 with cyano groups, e.g. cyanoalkyl ethers
- C08B 11/16 . Aryl or aralkyl ethers
- C08B 11/18 . . with substituted hydrocarbon radicals
- C08B 11/187 . with olefinic unsaturated groups
- C08B 11/193 . Mixed ethers, i.e. ethers with two or more different etherifying groups
- C08B 11/20 . Post-etherification treatments of chemical or physical type, {e.g. mixed etherification in two steps}, including purification
- C08B 11/22 . . Isolation

C08B 13/00 Preparation of cellulose ether-esters

- C08B 13/02 . Cellulose ether xanthates

C08B 15/00 Preparation of other cellulose derivatives or modified cellulose, {e.g. complexes}

- C08B 15/005 . {Crosslinking of cellulose derivatives}
- C08B 15/02 . Oxy-cellulose; Hydrocellulose; {Cellulosehydrate e.g. microcrystalline cellulose}
- C08B 15/04 . . Carboxycellulose, e.g. prepared by oxidation with nitrogen dioxide
- C08B 15/05 . Derivatives containing elements other than carbon, hydrogen, oxygen, halogens or sulfur {esters or phosphorous acids C08B 5/00}
- C08B 15/06 . . containing nitrogen, {e.g. carbamates}
- C08B 15/08 . Fractionation of cellulose, e.g. separation of cellulose crystallites
- C08B 15/10 . Crosslinking of cellulose

C08B 16/00 Regeneration of cellulose

C08B 17/00 Apparatus for esterification or etherification of cellulose

- C08B 17/02 . for making organic esters of cellulose
- C08B 17/04 . for making cellulose nitrate
- C08B 17/06 . for making cellulose ethers

C08B 30/00 Preparation of starch, degraded or non-chemically modified starch, amylose, or amylopectin

- C08B 30/02 . Preparatory treatment, e.g. crushing of raw materials {or steeping process (machines for preliminary washing A23N)}
- C08B 30/04 . Extraction or purification
- C08B 30/042 . . {from cereals or grains}
- C08B 30/044 . . . {from corn or maize}
- C08B 30/046 . . . {from wheat}
- C08B 30/048 . . {from potatoes}
- C08B 30/06 . Drying; Forming
- C08B 30/08 . Concentration of starch suspensions
- C08B 30/10 . Working-up residues from the starch extraction, {e.g. potato peel or steeping water}, including pressing water from the starch-extracted material

- C08B 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)}
- C08B 30/14
 - • Cold water dispersible or pregelatinised starch
- C08B 30/16
 - • Apparatus therefor
- C08B 30/18
 - • Dextrin, {e.g. yellow canari, white dextrin, amylopectin or maltodextrin; Methods of depolymerisation, e.g. by irradiation or mechanically}
- C08B 30/20
 - Amylose or amylopectin (chemical derivatives thereof C08B 33/00, C08B 35/00)

C08B 31/00

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

- C08B 31/003
 - {Crosslinking of starch}
- C08B 31/006
 - • {Crosslinking of derivatives of starch}
- C08B 31/02
 - Esters
- C08B 31/04
 - • of organic acids, {e.g. alkenyl-succinated starch}
- C08B 31/06
 - • of inorganic acids
- C08B 31/063
 - • • {Starch sulfates}
- C08B 31/066
 - • • {Starch phosphates, e.g. phosphorylated starch}
- C08B 31/08
 - Ethers
- C08B 31/10
 - • Alkyl or cycloalkyl ethers
- C08B 31/12
 - • having alkyl or cycloalkyl radicals substituted by heteroatoms, {e.g. hydroxyalkyl or carboxyalkyl starch}
- C08B 31/125
 - • • {having a substituent containing at least one nitrogen atom, e.g. cationic starch}
- C08B 31/14
 - • Aryl or aralkyl ethers
- C08B 31/16
 - Ether-esters
- C08B 31/18
 - Oxidised starch
- C08B 31/185
 - • {Derivatives of oxidised starch, e.g. crosslinked oxidised starch}

C08B 33/00

Preparation of derivatives of amylose

- C08B 33/02
 - Esters
- C08B 33/04
 - Ethers
- C08B 33/06
 - Ether-esters
- C08B 33/08
 - Oxidised amylose

C08B 35/00

Preparation of derivatives of amylopectin

- C08B 35/02
 - Esters
- C08B 35/04
 - Ethers
- C08B 35/06
 - Ether-esters
- C08B 35/08
 - Oxidised amylopectin

C08B 37/00

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

- C08B 37/0003 . {General processes for their isolation or fractionation, e.g. purification or extraction from biomass}
- C08B 37/0006 . {Homoglycans, i.e. polysaccharides having a main chain consisting of one single sugar, e.g. colominic acid}
- C08B 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}
- C08B 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}
- C08B 37/0015 {Inclusion compounds, i.e. host-guest compounds, e.g. polyrotaxanes}
- C08B 37/0018 . . . {Pullulan, i.e. (alpha-1,4)(alpha-1,6)-D-glucan; Derivatives thereof}
- C08B 37/0021 . . . {Dextran, i.e. (alpha-1,4)-D-glucan; Derivatives thereof, e.g. Sephadex, i.e. crosslinked dextran}
- C08B 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}
- C08B 37/0027 . . . {2-Acetamido-2-deoxy-beta-glucans; Derivatives thereof}
- C08B 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}
- C08B 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}
- C08B 37/0036 . . {Galactans; Derivatives thereof}
- C08B 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}
- C08B 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}
- C08B 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}
- C08B 37/0048 . . . {Processes of extraction from organic materials}
- C08B 37/0051 . . {beta-D-Fructofuranans, e.g. beta-2,6-D-fructofuranan, i.e. levan; Derivatives thereof}
- C08B 37/0054 . . . {Inulin, i.e. beta-2,1-D-fructofuranan; Derivatives thereof}
- C08B 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}

- C08B 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}
- C08B 37/0063
 - • {Glycosaminoglycans or mucopolysaccharides, e.g. keratan sulfate; Derivatives thereof, e.g. fucoidan}
- C08B 37/0066
 - • • {Isolation or extraction of proteoglycans from organs}
- C08B 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}
- C08B 37/0072
 - • • {Hyaluronic acid, i.e. HA or hyaluronan; Derivatives thereof, e.g. crosslinked hyaluronic acid (hylan) or hyaluronates}
- C08B 37/0075
 - • • {Heparin; Heparan sulfate; Derivatives thereof, e.g. heparosan; Purification or extraction methods thereof}
- C08B 37/0078
 - • • • {Degradation products}
- C08B 37/0081
 - • • • {Reaction with amino acids, peptides, or proteins}
- C08B 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}
- C08B 37/0087
 - • {Glucmannans 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}
- C08B 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}
- C08B 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}
- C08B 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}
- C08B 37/12
 - Agar-agar; Derivatives thereof (not used)
- C08B 37/125
 - • {Other polysaccharides of algae such as carragenan} (not used)
- C08B 37/14
 - Hemicellulose; Derivatives thereof (not used)
- C08B 37/143
 - • {composed by pentose units, e.g. xylose, xylan, pentosans, arabinose} (not used)
- C08B 37/146
 - • {composed by gluco and/or galactomannans, for example guar gum, locust bean gum} (not used)
- C08B 37/18
 - Reserve carbohydrates, e.g. glycogen, inulin, laminarin; Derivatives thereof (not used)