

**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**

[1202]

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](#)

**Guidance heading: 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. NH<sub>2</sub>, 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 [D01F](#) ; 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-NH<sub>2</sub> }
- 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	..	{ 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 }
C08B 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 }
- 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 )