

**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:

- |   |                            |            |                              |
|---|----------------------------|------------|------------------------------|
| - | <a href="#">C08B 37/06</a> | covered by | <a href="#">C08B 37/0045</a> |
| - | <a href="#">C08B 37/10</a> | covered by | <a href="#">C08B 37/0075</a> |
| - | <a href="#">C08B 37/12</a> | covered by | <a href="#">C08B 37/0039</a> |

**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	..	{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	..	{Glucomannans or galactomannans; Tara or tara gum, i.e. D-mannose and D-galactose units, e.g. from <i>Cesalpinia spinosa</i> ; Tamarind gum, i.e. D-galactose, D-glucose and D-xylose units, e.g. from <i>Tamarindus indica</i> ; Gum Arabic, i.e. L-arabinose, L-rhamnose, D-galactose and D-glucuronic acid units, e.g. from <i>Acacia Senegal</i> or <i>Acacia Seyal</i> ; 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 <i>Amorphophallus</i> 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 <i>Ceratonia siliqua</i> ; 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 <i>Cyamopsis Tetragonolobus</i> ; 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)