

**D21 PAPER-MAKING; PRODUCTION OF CELLULOSE****D21C PRODUCTION OF CELLULOSE BY REMOVING NON-CELLULOSE SUBSTANCES FROM CELLULOSE-CONTAINING MATERIALS; REGENERATION OF PULPING LIQUORS; APPARATUS THEREFOR**

Processes using enzymes or micro-organisms in order to:  
 (i) liberate, separate or purify a pre-existing compound or composition, or to  
 (ii) treat textiles or clean solid surfaces of materials  
 are further classified in subclass C12S. [5]

**PRODUCTION OF CELLULOSE**

Pretreatment of raw material ..... 1/00  
 Pulping ..... 3/00  
 Other processes ..... 5/00

Digesters..... 7/00  
 AFTER-TREATMENT ..... 9/00  
 REGENERATION OF PULP LIQUORS ..... 11/00

**1/00 Pretreatment of the finely-divided materials before digesting** (of waste paper D21C 5/02)

- 1/02 . with water or steam
- 1/04 . with acid reacting compounds
- 1/06 . with alkaline reacting compounds
- 1/08 . with oxygen-generating compounds
- 1/10 . Physical methods for facilitating impregnation

**3/00 Pulping cellulose-containing materials** (digesters D21C 7/00)

- 3/02 . with inorganic bases or alkaline reacting compounds, e.g. sulfate processes
- 3/04 . with acids, acid salts, or acid anhydrides
- 3/06 . . sulfur dioxide; sulfurous acid; bisulfites
- 3/08 . . . calcium bisulfite
- 3/10 . . . magnesium bisulfite
- 3/12 . . . sodium bisulfite
- 3/14 . . . ammonium bisulfite
- 3/16 . . nitrogen oxides; nitric acid
- 3/18 . with halogens or halogen-generating compounds (bleaching cellulose pulp D21C 9/12)
- 3/20 . with organic solvents
- 3/22 . Other features of pulping processes
- 3/24 . . Continuous processes
- 3/26 . . Multi-stage processes
- 3/28 . . Prevention of foam

**5/00 Other processes for obtaining cellulose, e.g. cooking cotton linters** (obtaining fibres for spinning D01C)

- 5/02 . Working-up waste paper (mechanical part D21B 1/08, D21B 1/32)

**7/00 Digesters**

- 7/02 . Rotary digesters
- 7/04 . Linings

- 7/06 . Feeding devices
- 7/08 . Discharge devices
- 7/10 . Heating devices
- 7/12 . Devices for regulating or controlling
- 7/14 . Means for circulating the lye
- 7/16 . Safety devices

**9/00 After-treatment of cellulose pulp, e.g. of wood pulp, or cotton linters**

- 9/02 . Washing
- 9/04 . . in diffusers
- 9/06 . . in filters
- 9/08 . Removal of fats, resins, pitch, or waxes
- 9/10 . Bleaching
- 9/12 . . with halogens or halogen-containing compounds (D21C 9/16 takes precedence) [4]
- 9/14 . . . with  $\text{ClO}_2$  or chlorites
- 9/147 . . with oxygen or its allotropic modifications (D21C 9/16 takes precedence) [4]
- 9/153 . . . with ozone [4]
- 9/16 . . with per compounds
- 9/18 . De-watering (de-watering in general F26B)

**11/00 Regeneration of pulp liquors**

- 11/02 . of sulfite lye
- 11/04 . of alkali lye
- 11/06 . Treatment of pulp gases; Recovery of the heat content of the gases
- 11/08 . . Deodorisation
- 11/10 . Concentrating spent liquor by evaporation (evaporators B01D)
- 11/12 . Combustion of pulp liquors
- 11/14 . . Wet combustion