

Title (en)
Process for flame-proofing of fibrous products

Title (de)
Verfahren zur flammhemmenden Ausrüstung von Faserprodukten

Title (fr)
Procédé d'ignifugation de produits fibreux

Publication
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Application
EP 03027959 A 20031205

Priority
EP 03027959 A 20031205

Abstract (en)
A method for flameproofing cellulose-based fibre products or preferably their precursors involves treatment with (A) a branched polyethyleneimine containing prim., sec. and tert. amino groups and (B) a phosphonic acid with one of three specified formulae. A method for flameproofing fibre products containing 20-100 wt% cellulose fibres involves treating the product (or preferably a precursor thereof) successively or simultaneously with components (A) and (B). (A) is a branched polyethyleneimine (PEI) with prim., sec. and tert. amino groups, showing a weight-average mol. wt. (M_w) of 5000-1500000 (preferably 10000-1000000), a numerical ratio of (sec.): (prim.) amino groups = (1.00:1)-(2.50:1) and a ratio of (sec.): (tert.) amino groups = (1.20:1)-(2.00:1), or a mixture of such PEI. (B) is a phosphonic acid of formula (I), (II) or (III), or a mixture of such compounds, in which up to 50 % of the hydrogen atoms on the P-bonded OH groups may be replaced by an alkali metal or ammonium, but preferably 100 % of these groups are not neutralized; [Image] [Image] y : 0, 1 or 2, preferably 0; R 1>H or OH; R : 1-7C alkyl if R 1> is OH, or 3-7C alkyl if R 1> is H; R 2>-P(O)(OH) 2; R 3>H or R 2>, preferably R 2>; R 4>H or -CH 2-P(O)(OH) 2 or a group of formula (IV), preferably with 50-100 % of all R 4> groups which are present representing -CH 2-P(O)(OH) 2; t : 0 or 1-10. [Image].

Abstract (de)
Bei Faserprodukten, welche 20 bis 100 Gew% Cellulosefasern enthalten, lassen sich flammhemmende Eigenschaften dadurch erzielen, dass man auf die Faserprodukte oder auf Vorstufen davon ein Polyethylenimin und eine Phosphonsäure aufbringt. Die Vorstufen der Faserprodukte können wässrige Fasersuspensionen sein, welche zu Papier oder Faserpressplatten weiterverarbeitet werden.

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IPC 8 full level
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CPC (source: EP US)
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Citation (search report)
• [A] EP 0542071 A1 19930519 - WOLMAN GMBH DR [DE]
• [A] EP 0599812 A2 19940601 - CHISSO CORP [JP]
• [A] EP 0401538 A2 19901212 - CHISSO CORP [JP]
• [A] WO 0029490 A2 20000525 - COLLOID SURFACE TECHNOLOGIES G [DE], et al
• [A] EP 0451665 A1 19911016 - ALBRIGHT & WILSON [GB]
• [A] US 2632743 A 19530324 - ECKERT LEWIS W
• [A] GB 1450446 A 19760922 - UNITED MERCHANTS & MFG

Cited by
CN108642962A; WO2006105833A1

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