

Title (en)  
MULTI-LAYERED TISSUE PAPER WEB COMPRISING BIODEGRADABLE CHEMICAL SOFTENING COMPOSITIONS AND BINDERS

Title (de)  
MEHRSCHICHTIGES TISSUEPAPIERGEWEBE ENTHALTEND BIOABBAUBARE, WEICHMACHENDE CHEMISCHE ZUSAMMENSETZUNGEN UND BINDEMittel

Title (fr)  
BANDE DE PAPIER TISSU A COUCHES MULTIPLES CONTENANT DES COMPOSITIONS CHIMIQUES ADOUCISSANTES BIODEGRADABLES ET DES LIANTS

Publication  
**EP 0706591 B1 20010829 (EN)**

Application  
**EP 94920271 A 19940617**

Priority  

- US 9406916 W 19940617
- US 8585293 A 19930630

Abstract (en)  

[origin: WO9501479A1] Multi-layered tissue paper webs comprising biodegradable chemical softener compositions and binder materials are disclosed. The multi-layered tissue webs are useful in the manufacture of soft, absorbent paper products such as facial tissues and/or toilet tissues. The multi-layered tissue paper products contain a biodegradable chemical softening composition, preferably comprising a mixture of an ester-functional quaternary ammonium compound and a polyhydroxy compound. Preferred ester-functional quaternary ammonium compounds include diester dialkyl dimethyl ammonium salts such as diester di(tough hardened)tallow dimethyl ammonium chloride, diester di(hydrogenated)tallow dimethyl ammonium chloride. Preferred polyhydroxy compounds are selected from the group consisting of glycerol, sorbitols, polyglycerols having a weight average molecular weight of from about 150 to about 800, polyoxyethylene glycols and polyoxypropylene glycols having a weight average molecular weight from about 200 to 4,000. The multi-layered tissue paper webs also contain an effective amount of binder materials to control linting and/or to offset the loss in tensile strength, if any, resulting from the use of the chemical softening compositions. The binder materials are selected from the various wet and dry strength additives, and retention aids used in the paper making art. Preferably, the majority of the biodegradable chemical softening compositions will be disposed on the outer layers of the multi-layered tissue paper products where they are most effective. The binder materials are typically dispersed throughout the multi-layered product to control linting. In other words, the chemical softening compositions and the binder materials can be selectively distributed within the multi-layered tissue paper web to enhance the softness, absorbency, and/or lint resistance of a particular layer or ply.

IPC 1-7  
**D21H 17/07**; **D21H 17/06**; **D21H 17/14**; **D21H 17/54**

IPC 8 full level  
**A47K 7/00** (2006.01); **D21H 11/00** (2006.01); **D21H 17/06** (2006.01); **D21H 17/07** (2006.01); **D21H 17/14** (2006.01); **D21H 17/54** (2006.01); **D21H 21/22** (2006.01); **D21H 27/38** (2006.01)

CPC (source: EP KR)  
**D21H 17/06** (2013.01 - EP KR); **D21H 17/07** (2013.01 - EP KR); **D21H 17/14** (2013.01 - EP KR); **D21H 17/54** (2013.01 - EP KR); **D21H 21/22** (2013.01 - EP); **D21H 27/38** (2013.01 - EP)

Designated contracting state (EPC)  
AT BE CH DE DK ES FR GB GR IE IT LI LU NL PT SE

DOCDB simple family (publication)  
**WO 9501479 A1 19950112**; AT E204935 T1 20010915; AU 7112894 A 19950124; BR 9406992 A 19960910; CA 2165536 A1 19950112; CZ 351495 A3 19960717; DE 69428118 D1 20011004; DE 69428118 T2 20020606; EP 0706591 A1 19960417; EP 0706591 B1 20010829; ES 2159561 T3 20011016; FI 956336 A0 19951229; FI 956336 A 19960228; HU 9503967 D0 19960328; HU T74119 A 19961128; JP H08512104 A 19961217; KR 100333211 B1 20021104; KR 960703448 A 19960817; MY 114367 A 20021031; NO 308320 B1 20000828; NO 960002 D0 19960102; NO 960002 L 19960229; NZ 268281 A 19980325; PE 28095 A1 19951011; SG 64312 A1 19990427; TR 27850 A 19950904; TW 305001 B 19970511

DOCDB simple family (application)  
**US 9406916 W 19940617**; AT 94920271 T 19940617; AU 7112894 A 19940617; BR 9406992 A 19940617; CA 2165536 A 19940617; CZ 351495 A 19940617; DE 69428118 T 19940617; EP 94920271 A 19940617; ES 94920271 T 19940617; FI 956336 A 19951229; HU 9503967 A 19940617; JP 50354295 A 19940617; KR 19950706043 A 19951230; MY PI19941696 A 19940630; NO 960002 A 19960102; NZ 26828194 A 19940617; PE 24564394 A 19940630; SG 1996002828 A 19940617; TR 60794 A 19940630; TW 83105804 A 19940627