

Title (en)  
IMPROVED FILTER PAPER FOR CIGARETTE FILTERS

Title (de)  
VERBESSERTES FILTERPAPIER FÜR ZIGARETTENFILTER

Title (fr)  
PAPIER FILTRE AMÉLIORÉ POUR FILTRE DE CIGARETTE

Publication  
**EP 3433427 B1 20200909 (DE)**

Application  
**EP 17701315 A 20170124**

Priority  
• DE 102016105235 A 20160321  
• EP 2017051368 W 20170124

Abstract (en)  
[origin: WO2017162347A1] The invention relates to a filter paper for producing filters for smoking articles, in particular filter cigarettes, having the following properties: the filter paper comprises fibers comprising pulp fibers; at least 80 wt.%, preferably at least 90 wt.%, particularly preferably at least 95 wt.%, and particularly preferably 100 wt.%, of the filter paper is made of long-fiber pulp fibers; 2% to 10%, preferably 3% to 9%, particularly preferably 4% to 8%, of the fibers with respect to the number of fibers have a length of less than 0.2 mm; the air permeability of the filter paper, measured according to ISO 2965:2009, is between 500 cm-min<sup>-1</sup>kPa<sup>-1</sup> and 15000 cm-min<sup>-1</sup>kPa<sup>-1</sup> and preferably between 1000 cm-min<sup>-1</sup>kPa<sup>-1</sup> and 9000 cm-min<sup>-1</sup>kPa<sup>-1</sup>; the average length of the fibers in the filter paper with respect to the number of fibers is more than 1 mm and less than 5 mm, preferably more than 2 mm and less than 4 mm; and the average width of the fibers in the filter paper with respect to the number of fibers is between 10 μm and 50 μm, preferably between 20 μm and 40 μm, and particularly preferably between 25 μm and 35 μm.

IPC 8 full level  
**A24D 1/02** (2006.01); **A24D 3/06** (2006.01); **A24D 3/10** (2006.01); **D21H 11/00** (2006.01); **D21H 15/06** (2006.01); **D21H 27/00** (2006.01); **D21H 27/08** (2006.01)

CPC (source: EP US)  
**A24D 3/06** (2013.01 - EP US); **A24D 3/10** (2013.01 - EP US); **D21H 11/00** (2013.01 - EP US); **D21H 15/06** (2013.01 - EP US); **D21H 27/00** (2013.01 - EP US); **D21H 27/08** (2013.01 - EP US)

Citation (opposition)  
Opponent : Miquel y Costas & Miquel S.A.  
• WO 2015178995 A1 20151126 - GREENBUTTS LLC [US]  
• WO 2015035137 A1 20150312 - SCHWEITZER MAUDUIT INT INC [US], et al  
• EP 0758532 A2 19970219 - JAPAN TOBACCO INC [JP], et al  
• US 2014137880 A1 20140522 - ZITTURI ROLAND [AT], et al  
• US 2015173414 A1 20150625 - BACHMANN STEFAN [AT], et al  
• JP 2003119613 A 20030423 - DAICEL CHEM  
• ANDRITZ: "Papillon refiner. Gentle fiber treatment with low energy consumption", ANDRITZ - BROCHURE, 2010, XP055815760, Retrieved from the Internet <URL:https://www.andritz.com/resource/blob/22642/a05d97de8d3547b0820756e5430080fb/pp-stockpreparation-lowconsistency-refining-papillon-data.pdf>  
• SVEN-OLOF LUNDQVIST ET AL: "Models for fibre dimensions in different softwood species. Simulation and comparison of within and between tree variations for Norway and Sitka spruce, Scots and Loblolly pine", IUFRO FIFTH WORKSHOPE WOOD QUALITY MODELLING, 22 November 2005 (2005-11-22) - 27 November 2005 (2005-11-27), Auckland, New Zealand, pages 1 - 12, XP055815757, Retrieved from the Internet <URL:http://www.trees4future.eu/uploads/TAs/IUFRO%20paper%20NZ%202005\_Comparison%20of%20wood%20species\_f\_ART%2005\_54.pdf>  
• MARTIN HUBBE: "SOFTWOOD", MINI-ENCYCLOPEDIA OF PAPERMAKING WET-END CHEMISTRY. ADDITIVES AND INGREDIENTS, THEIR COMPOSITION, FUNCTIONS, STRATEGIES FOR USE AND COMMON WET-END CHEMICAL TERMS, Retrieved from the Internet <URL:https://projects.ncsu.edu/project/hubbepaperchem/SW.htm>  
• ANDRITZ: "The most advanced refining system for any application ANDRITZ low-consistency refining", ANDRITZ, 2021, XP055815761, Retrieved from the Internet <URL:https://www.andritz.com/products-en/pulp-and-paper/pulp-and-paper/paper-production/stock-preparation/low-consistency-refining>  
• ANDRITZ: "TwinFlo Refiner. Balanced Refining", ANDRITZ, October 2009 (2009-10-01), XP055815762, Retrieved from the Internet <URL:https://www.andritz.com/resource/blob/22644/1be0b0bcde0279fecb0e2ee5575524ce/pp-stockpreparation-lowconsistency-refining-twinflo-data.pdf>  
• LUCIANA: "Cationic Starch", MINI-ENCYCLOPEDIA OF PAPERMAKING WET-END CHEMISTRY, 16 April 2008 (2008-04-16), XP055815759, Retrieved from the Internet <URL:https://cationicstarch.blogspot.com/2008/04/mini-encyclopedia-of-papermaking-wet.html>  
Opponent : Schweitzer-Mauduit International, Inc.  
• US 2015173414 A1 20150625 - BACHMANN STEFAN [AT], et al  
• US 2015374030 A1 20151231 - LISAUSKAS TADAS [US], et al  
• WO 2014207704 A2 20141231 - PAN JIAYI [FR], et al  
• US 5394895 A 19950307 - MURAMATSU MOTOHIKO [JP], et al  
• US 6103294 A 20000815 - BENDINER BERNARD [US]  
• US 4809717 A 19890307 - IMBERY DIETER [DE], et al  
• US 2012067359 A1 20120322 - CLARKE PAUL FRANCIS [GB], et al  
• GB 2075328 A 19811118 - FILTRONA LTD  
• WO 2009031246 A1 20090312 - DAICEL CHEM [JP], et al  
• US 5692527 A 19971202 - MATSUMURA HIROYUKI [JP], et al  
• US 2013014774 A1 20130117 - SEBASTIAN ANDRIES D [US], et al  
• BIORESOURCES COM ET AL.: "PEER-REVIEWED ARTICLE COMPARISON OF THE PROPERTIES OF WOOD AND PULP FIBERS FROM LODGEPOLE PINE (Pinus contorta) AND SCOTS PINE (Pinus sylvestris)", BIORESOURCES, 1 January 2012 (2012-01-01), pages 1771 - 1783, XP055356045  
• "Papillon Refiner - Gentle and Stable Refining", ANDRITZ PULP, 1 January 2010 (2010-01-01), XP055815760

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

**DE 102016105235 A1 20170921; DE 102016105235 B4 20190214;** BR 112018068607 A2 20190205; CN 108779609 A 20181109;  
CN 108779609 B 20211116; EP 3433427 A1 20190130; EP 3433427 B1 20200909; ES 2836530 T3 20210625; PH 12018501973 A1 20190617;  
PL 3433427 T3 20210308; US 11083217 B2 20210810; US 2019059443 A1 20190228; WO 2017162347 A1 20170928

DOCDB simple family (application)

**DE 102016105235 A 20160321;** BR 112018068607 A 20170124; CN 201780018157 A 20170124; EP 17701315 A 20170124;  
EP 2017051368 W 20170124; ES 17701315 T 20170124; PH 12018501973 A 20180913; PL 17701315 T 20170124;  
US 201716087172 A 20170124