

Title (en)
MONOFILAMENTS WITH SPLIT ENDS

Title (de)
MONOFILAMENTE MIT GESPALTENEN ENDEN

Title (fr)
MONOFILAMENTS A EXTREMITES FENDUES

Publication
EP 0986656 B1 20041117 (EN)

Application
EP 97918786 A 19970424

Priority
US 9706780 W 19970424

Abstract (en)
[origin: WO9848086A1] Monofilaments with split ends. The monofilaments can be used to form toothbrush bristles having flagged or feathered tips. Each of the monofilaments has a plurality of internal fusion lines and at least four voids, wherein the voids comprise between 5 and 20 % of the cross-sectional area of the monofilaments. Preferably, the monofilaments each have a diameter in a range of 0.0025 to 0.012 inches, and have a hexalocular or an octalocular configuration. The monofilaments are manufactured by extruding a plurality of thermoplastic polymeric streams, rotating a plurality of cutting blades above 1000 rpm, and placing a plurality of cutting blades in contact with end portions of the plurality of thermoplastic polymeric streams to form split ends.

IPC 1-7
D01D 5/08; A46B 1/00; A46B 9/04

IPC 8 full level
A46B 9/04 (2006.01); **A46D 1/00** (2006.01); **D01D 4/02** (2006.01); **D01D 5/24** (2006.01); **D01D 5/253** (2006.01); **D01F 6/60** (2006.01); **D01F 6/62** (2006.01)

CPC (source: EP)
A46D 1/00 (2013.01); **A46D 1/0238** (2013.01); **A46D 1/0292** (2013.01); **D01D 5/24** (2013.01); **D01D 5/253** (2013.01); **A46B 2200/1066** (2013.01)

Cited by
US10743647B2; US11241080B2; US9320335B2

Designated contracting state (EPC)
DE FR GB IT NL

DOCDB simple family (publication)
WO 9848086 A1 19981029; AU 2680197 A 19981113; CA 2287342 A1 19981029; CA 2287342 C 20070116; DE 69731666 D1 20041223; DE 69731666 T2 20060216; EP 0986656 A1 20000322; EP 0986656 B1 20041117; JP 2001523308 A 20011120; JP 3958801 B2 20070815

DOCDB simple family (application)
US 9706780 W 19970424; AU 2680197 A 19970424; CA 2287342 A 19970424; DE 69731666 T 19970424; EP 97918786 A 19970424; JP 54564998 A 19970424