

Title (en)

LOW-SHRINK POLYPROPYLENE TAPE FIBERS AND METHODS OF PRODUCTION THEREOF

Title (de)

SCHRUMPFARME POLYPROPYLENBÄNDCHENFASERN UND DAFÜR GEEIGNETE HERSTELLUNGSVERFAHREN

Title (fr)

FIBRES DE BANDE EN POLYPROPYLENE A FAIBLE RETRAIT ET PROCEDES DE PRODUCTION CORRESPONDANTS

Publication

EP 1468131 A1 20041020 (EN)

Application

EP 02794092 A 20021202

Priority

- US 0238322 W 20021202
- US 3660401 A 20011221
- US 2762601 A 20011221

Abstract (en)

[origin: WO03057956A1] Improvements in preventing heat- and moisture-shrink problems in specific polypropylene tape fibers are provided. Such fibers are basically manufactured through the initial production of polypropylene films or tubes which are then slit into very thin, though flat (and having very high cross sectional aspect ratios) tape fibers thereafter. Such fibers (and thus the initial films and/or tubes) require the presence of certain compounds that quickly and effectively provide rigidity to the target polypropylene tape fiber after heat-setting. Generally, these compounds include any structure that nucleates polymer crystals within the target polypropylene after exposure to sufficient heat to melt the initial pelletized polymer and upon allowing such a melt to cool. The compounds must nucleate polymer crystals at a higher temperature than the target polypropylene without the nucleating agent during cooling. In such a manner, the "rigidifying" nucleator compounds provide nucleation sites for polypropylene crystal growth. Upon slitting of the initial film and/or tube, the fiber is then exposed to sufficient heat to grow the crystalline network, thus holding the fiber in a desired position. The preferred "rigidifying" compounds include dibenzylidene sorbitol based compounds, as well as less preferred compounds, such as sodium benzoate, certain sodium and lithium phosphate salts (such as sodium 2,2'-methylene-bis-(4,6-di-tert-butylphenyl)phosphate, otherwise known as NA-11). Specific methods of manufacture of such inventive tape fibers, as well as fabric articles made therefrom, are also encompassed within this invention.

IPC 1-7

D02G 3/00; **B32B 5/24**; **D04B 1/00**

IPC 8 full level

A47G 27/02 (2006.01); **B32B 5/06** (2006.01); **B32B 5/26** (2006.01); **D02G 3/02** (2006.01); **D02J 1/22** (2006.01); **D03D 15/02** (2006.01); **D06N 7/00** (2006.01)

CPC (source: EP)

B32B 5/06 (2013.01); **B32B 5/26** (2013.01); **D06N 7/0068** (2013.01); **B32B 2307/734** (2013.01); **B32B 2471/00** (2013.01); **D06N 2201/0254** (2013.01); **D06N 2201/12** (2013.01)

Citation (search report)

See references of WO 03057956A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SI SK TR

DOCDB simple family (publication)

WO 03057956 A1 20030717; AU 2002359546 A1 20030724; BR 0215059 A 20051101; CN 100562613 C 20091125; CN 1599813 A 20050323; EP 1468131 A1 20041020; JP 2005533932 A 20051110

DOCDB simple family (application)

US 0238322 W 20021202; AU 2002359546 A 20021202; BR 0215059 A 20021202; CN 02824032 A 20021202; EP 02794092 A 20021202; JP 2003558245 A 20021202