

Title (en)

PROCESS FOR PRODUCING HIGH TENACITY, HIGH MODULUS CRYSTALLINE THERMOPLASTIC ARTICLE AND NOVEL PRODUCT FIBERS

Publication

EP 0064167 B1 19851121 (EN)

Application

EP 82102964 A 19820407

Priority

- US 25926681 A 19810430
- US 35901982 A 19820319
- US 35902082 A 19820319

Abstract (en)

[origin: EP0064167A1] Solutions of ultrahigh molecular weigh polymers such as polyethylene in a relatively non-volatile solvent are extruded through an aperture (25) at constant concentration through the aperture and cooled to form a first gel of indefinite length (33). The first gels are extracted (D) with a volatile solvent to form a second gel (41) and the second gel is dried (E) to form a low porosity xerogel (47). The first gel, second gel or xerogel, or a combination, are stretched (F). Among the products obtainable are polyethylene fibers of greater than 38 or even 40 g/denier tenacity and of modulus greater than 1000 or even 1600 or 2000 g/denier.

IPC 1-7

D01F 6/04

IPC 8 full level

D01F 6/04 (2006.01); **B29C 49/00** (2006.01); **B29C 55/00** (2006.01); **B29C 55/04** (2006.01); **C08J 5/18** (2006.01); **D01F 6/02** (2006.01); **D01F 6/06** (2006.01); **D01F 6/12** (2006.01); **D01F 6/66** (2006.01); **D02J 1/22** (2006.01)

CPC (source: EP KR)

D01F 6/02 (2013.01 - EP); **D01F 6/04** (2013.01 - EP KR); **D01F 6/06** (2013.01 - EP KR)

Citation (examination)

- POLYMER BULLETIN, vol.1, 1979, Springer Verlag, Berlin (DE) B. KALB et al.: "Spinning of high molecular weight polyethylene solution and subsequent drawing in a temperature gradient", pages 871-876
- POLYMER BULLETIN, vol.2, 1980, Springer Verlag, Berlin (DE) J. SMOOK et al.: "Influence of spinning/hot drawing conditions on the tensile strenght of porous high molecular weight polyethylene", pages 775-783
- Journal of Materials Science, 15, (1980), pages 505-514

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