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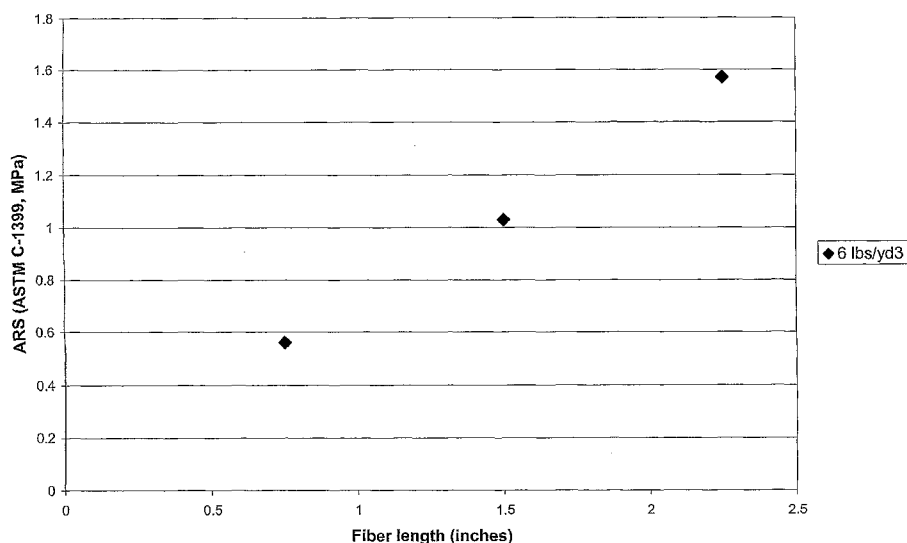
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(54) Title: POLYPROPYLENE FIBER FOR REINFORCEMENT OF MATRIX MATERIALS



(57) Abstract: Disclosed are structural materials including polymeric reinforcement fibers that can provide added strength and fracture toughness to the matrix. The polymeric reinforcement fibers are polypropylene-based monofilament fibers or tape fibers exhibiting extremely favorable mechanical characteristics for structural reinforcement including modulus greater than 12 MPa and elongation less than about 10 %. The disclosed reinforced composite materials can exhibit desired average residual strength values with less total fiber loading necessary to attain the ARS values as compared to previously known polymer reinforced materials. Very high strength and fracture toughness can be attained in the disclosed composite materials.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/21201

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8):D04H 13/00; D02G 3/00 (2007.01)

USPC: 428/292.1, 373

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
442/189, 268, 286, 290; 428/292.1, 221, 293.4, 294.4, 294.7, 299.1, 299.7, 300.4 (text search - see terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST (PGPB,USPT,USOC,EPAB,JPAB); DialogPro (General Research); Google Scholar

Composite, fiber, matrix, polypropylene, modulus, elongation, strength, loading, cubic, megapascal, gigapascal, polyethylene, tape, fibrillated, equatorial, meridonal, intensity, scattering, saxes, waxes, crystalline, cure

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0082378 A1 (RIEDER et al.) 01 May 2003; (01.05.2003), para [0016], [0019], [0021], [0027], [0028], [0047], [0048], [0056], [0059], [0062], [0064], [0070] and [0071].	1-55
Y	US 2003/0044592 A1 (PEREZ et al.), 06 March 2003; abstract, para [0002], [0005]-[0007], [0009], [0011], [0015], [0017], [0024], [0026], [0035], [0041], [0116] and claims 9, 26 and 28.	1-13, 15-32, 34, 35, 40, 41 and 43-55
Y	US 2005/0019565 A1 (MORIN et al.) 27 January 2005 (27.01.2005), abstract, para [0002], [0003], [0012], [0013], [0018], [0024], [0026], [0030], [0031], [0056], [0058], [0061], [0068], [0070] and [0071].	14 and 33-55
Y	US 4,979,992 A (BACHE) 25 December 1990 (25.12.1990), col 3, ln 3-13, col 3, ln 64 - col 4, ln 9 and claim 23.	19 and 42
A	US 2001/0050032 A1 (DRY) 13 December 2001 (13.12.2001), entire document.	1-55
A	US 6,753,081 B1 (LOVETT et al.) 22 June 2004 (22.06.2004), abstract, Fig. 13, col 1, ln 60-67, col 2, ln 20-29, col 2, ln 57 - col 3, ln 21, col 5, ln 10-20, col 6, ln 34-50 and col 33, ln 25-40.	1-19, 28, 30, 31, 40-42, 48, 49 and 55

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