PAN precursor fabrication, applications and thermal sta production: Experimental and mathematical modelling

Progress in Materials Science 107, 100575 DOI: 10.1016/j.pmatsci.2019.100575

Citation Report

#	Article	IF	CITATIONS
1	Kinetics of the cyclization and isomerization reactions in polyacrylonitrile based carbon fiber precursors during thermalâ€oxidative stabilization. Journal of Applied Polymer Science, 2020, 137, 48819.	1.3	21
2	Accelerating Thermal Stabilization by Pyrolytic Lignin for Partially Bioâ€Based Carbon Fiber Precursor. Macromolecular Materials and Engineering, 2020, 305, 1900618.	1.7	7
3	Constructing mainstay-body structure in heterocyclic aramid fiber to simultaneously improve tensile strength and toughness. Composites Part B: Engineering, 2020, 202, 108411.	5.9	28
4	From Microfibrillar Network to Lamellae during the Coagulation Process of Polyacrylonitrile Fiber: Visualization of Intermediate Structure Evolution. Macromolecules, 2020, 53, 8663-8673.	2.2	8
5	Synergetic effects of carbon nanotube and graphene addition on thermo-mechanical properties and vibrational behavior of twill carbon fiber reinforced polymer composites. Polymer Testing, 2020, 90, 106745.	2.3	48
6	Effect of lignin-based monomer on controlling the molecular weight and physical properties of the polyacrylonitrile/lignin copolymer. International Journal of Biological Macromolecules, 2020, 164, 2312-2322.	3.6	9
7	Methods with Nanoarchitectonics for Small Molecules and Nanostructures to Regulate Living Cells. Small Methods, 2020, 4, 2000500.	4.6	23
8	Fabrication and Specific Functionalisation of Carbon Fibers for Advanced Flexible Biosensors. Frontiers in Chemistry, 2020, 8, 582490.	1.8	5
9	The Effect of the Synthetic Procedure of Acrylonitrile–Acrylic Acid Copolymers on Rheological Properties of Solutions and Features of Fiber Spinning. Materials, 2020, 13, 3454.	1.3	9
10	Key issues facing electrospun carbon nanofibers in energy applications: on-going approaches and challenges. Nanoscale, 2020, 12, 13225-13248.	2.8	63
11	Multi-mode real-time strain monitoring in composites using low vacuum carbon fibers as a strain sensor under different loading conditions. Smart Materials and Structures, 2020, 29, 085035.	1.8	6
12	A Novel Hybrid Machine Learning Algorithm for Limited and Big Data Modeling With Application in Industry 4.0. IEEE Access, 2020, 8, 111381-111393.	2.6	32
13	Ultra-thin carbon nanofibers based on graphitization of near-field electrospun polyacrylonitrile. Nanoscale, 2020, 12, 10521-10531.	2.8	20
14	Impact of the wet spinning parameters on the alpacaâ€based polyacrylonitrile composite fibers: Morphology and enhanced mechanical properties study. Journal of Applied Polymer Science, 2020, 137, 49264.	1.3	19
15	Fiber-Forming Acrylonitrile Copolymers: From Synthesis to Properties of Carbon Fiber Precursors and Prospects for Industrial Production. Polymer Science - Series C, 2020, 62, 17-50.	0.8	9
16	Accelerating the formation of the conjugated ladder structure of Poly(acrylonitrile-co-vinyl acetate) by cross-linked poplar lignin doped with boron phosphate. Materials Research Express, 2020, 7, 055309.	0.8	7
17	A Sustainable Approach to the Low-Cost Recycling of Waste Glass Fibres Composites towards Circular Economy. Sustainability, 2020, 12, 641.	1.6	32
18	Wearable fiber-based thermoelectrics from materials to applications. Nano Energy, 2021, 81, 105684.	8.2	92

#	ARTICLE	IF	CITATIONS
19	Carbon fiber and glass fiber reinforced elastomeric composites. , 2021, , 307-340.		1
20	A Mini-Review and Perspective on Current Best Practice and Emerging Industry 4.0 Methods for Risk Reduction in Advanced Composites Manufacturing. Open Journal of Composite Materials, 2021, 11, 31-45.	0.4	2
21	Preparation, Properties and Mechanisms of Carbon Fiber/Polymer Composites for Thermal Management Applications. Polymers, 2021, 13, 169.	2.0	31
22	Advanced robotics and additive manufacturing of composites: towards a new era in Industry 4.0. Materials and Manufacturing Processes, 2022, 37, 483-517.	2.7	93
23	Comparing the properties of commercially treated and air plasma treated carbon fibers. Surface and Coatings Technology, 2021, 408, 126751.	2.2	15
24	Dual-doping activated carbon with hierarchical pore structure derived from polymeric porous monolith for high performance EDLC. Electrochimica Acta, 2021, 375, 137927.	2.6	15
25	Preparation and Characterization of Carbon Fibers from Lyocell Precursors Grafted with Polyacrylamide via Electron-Beam Irradiation. Molecules, 2021, 26, 2459.	1.7	4
26	Growth of diamond coating on carbon fiber: Relationship between fiber microstructure and stability in hydrogen plasma. Diamond and Related Materials, 2021, 115, 108349.	1.8	2
27	Electrospun nanocomposite fibers from lignin and iron oxide as supercapacitor material. Journal of Materials Research and Technology, 2021, 12, 2153-2167.	2.6	25
28	Macromolecular Chain Structure Regulation of AN–MA–IA Aqueous Copolymerization with a Water-Soluble Azo Initiator AIBA. Industrial & Engineering Chemistry Research, 2021, 60, 8409-8419.	1.8	4
29	Status of rechargeable potassium batteries. Nano Energy, 2021, 83, 105792.	8.2	113
30	Polyacrylonitrile based carbon fibers: Spinning technology dependent precursor fiber structure and its successive transformation. Journal of Applied Polymer Science, 2021, 138, 50988.	1.3	8
31	The effect of thermal pretreatment temperature on the diameters and mechanical properties of asphaltene-derived carbon fibers. Journal of Materials Science, 2021, 56, 14964-14977.	1.7	8
32	Design of a ductile carbon nanofiber/ZrB2 nanohybrid film with entanglement structure fabricated by electrostatic spinning. Ceramics International, 2021, 47, 15114-15120.	2.3	13
33	Business analytics in Industry 4.0: A systematic review. Expert Systems, 2021, 38, e12741.	2.9	19
34	Stabilisation of sheep wool fibres under air atmosphere: Study of physicochemical changes. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2021, 268, 115115.	1.7	8
35	Improving energy efficiency of carbon fiber manufacturing through waste heat recovery: A circular economy approach with machine learning. Energy, 2021, 225, 120113.	4.5	37
36	Development of low cost carbon fibers based on chlorinated polyvinyl chloride(CPVC) for automotive applications. Materials and Design, 2021, 204, 109682.	3.3	6

#	Article	IF	CITATIONS
37	Insights into pyrolysis behavior of polyacrylonitrile precursors using Py-GC/MS. Chemical Papers, 2021, 75, 5297-5311.	1.0	4
38	A review on microwave-assisted synthesis of adsorbents and its application in the removal of water pollutants. Journal of Water Process Engineering, 2021, 41, 102006.	2.6	22
39	Lignin-Based High-Performance Fibers by Textile Spinning Techniques. Materials, 2021, 14, 3378.	1.3	19
40	The Photocatalysis-Enhanced TiO ₂ @HPAN Membrane with High TiO ₂ Surface Content for Highly Effective Removal of Cationic Dyes. Langmuir, 2021, 37, 9415-9428.	1.6	15
41	Mapping nitrogen heteroatoms in carbon fibres using atom probe tomography and photoelectron spectroscopy. Carbon, 2021, 179, 20-27.	5.4	10
42	The micro-void structure transformation and properties assessment of polyacrylonitrile fibers irradiated by electron-beam as carbon fiber precursor. Polymer Testing, 2021, 99, 107218.	2.3	4
43	Predicting the Cyclization Index and Density of Stabilized Polyacrylonitrile Tow from Processing Conditions. Fibers and Polymers, 2021, 22, 3241-3250.	1.1	6
44	SiO ₂ -Coated Fe ₃ O ₄ Nanoparticle/Polyacrylonitrile Beads for One-Step Lipase Immobilization. ACS Applied Nano Materials, 2021, 4, 7856-7869.	2.4	17
45	Machine Learning in Chemical Product Engineering: The State of the Art and a Guide for Newcomers. Processes, 2021, 9, 1456.	1.3	28
46	Characterization of polyacrylonitrile thermal stabilization process for carbon fiber production using intelligent algorithms. Polymer Testing, 2021, 100, 107238.	2.3	11
47	Asphaltene thermal treatment and optimization of oxidation conditions of low-cost asphaltene-derived carbon fibers. Journal of Industrial and Engineering Chemistry, 2021, 104, 427-436.	2.9	19
48	Confinement of transition metal phosphides in N, P-doped electrospun carbon fibers for enhanced electrocatalytic hydrogen evolution. Journal of Alloys and Compounds, 2021, 875, 159934.	2.8	16
49	Highâ€Performance Carbon Fibers Prepared by Continuous Stabilization and Carbonization of Electron Beamâ€Irradiated Textile Grade Polyacrylonitrile Fibers. Macromolecular Materials and Engineering, 2021, 306, 2100484.	1.7	7
50	Balancing the toughness and strength in polypropylene composites. Composites Part B: Engineering, 2021, 223, 109121.	5.9	75
51	Melt spinning of poly(acrylonitrile)-co-styrene copolymer. Polymer Degradation and Stability, 2021, 192, 109702.	2.7	4
52	Computer simulation of a composite based on a monolayer of pyrolyzed polyacrylonitrile containing paired metal atoms Cu, Co, Ni, Fe. Letters on Materials, 2021, 11, 146-151.	0.2	1
53	Carbon fibers. Tanso, 2021, 2021, 9-33.	0.1	0
54	Continuous, Pilot-Scale Production of Carbon Fiber from a Textile Grade PAN Polymer. SSRN Electronic Journal, 0, , .	0.4	0

#	Article	IF	CITATIONS
55	Novel PSt/PGMA/PIN ternary composite for SPE and analysis of some heavy metals in various cosmetics and food products by flame AAS. International Journal of Environmental Analytical Chemistry, 2023, 103, 89-105.	1.8	2
56	Design of Low Cost Carbon Fiber Composites via Examining the Micromechanical Stress Distributions in A42 Bean-Shaped versus T650 Circular Fibers. Journal of Composites Science, 2021, 5, 294.	1.4	2
57	Bismuth oxybromide/bismuth oxyiodide nanojunctions decorated on flexible carbon fiber cloth as easily recyclable photocatalyst for removing various pollutants from wastewater. Journal of Colloid and Interface Science, 2022, 608, 2660-2671.	5.0	17
58	Enhanced both in-plane and through-thickness thermal conductivity of carbon fiber/epoxy composites by fabricating high thermal conductive coaxial PAN/PBO carbon fibers. Composites Part B: Engineering, 2022, 229, 109468.	5.9	24
59	High Surface Area Nâ€Doped Carbon Fibers with Accessible Reaction Sites for Allâ€Solidâ€State Lithiumâ€Sulfur Batteries. Small, 2022, 18, e2105678.	5.2	16
60	Synthesis, Characterization and Conductivity Properties of Polystyrene/Polyacrylonitrile/Polyindole Ternary Composites. Journal of Material Science and Technology Research, 0, 7, .	0.2	1
61	Evolution of Microstructure within Carbon Fiber During Pre-Carbonization Revealed by Mean Field Theory. SSRN Electronic Journal, 0, , .	0.4	0
62	Accelerating the stabilization of polyacrylonitrile fibers by nitrogen pretreatment. Journal of Applied Polymer Science, 2022, 139, .	1.3	8
63	Carbon reinforced carbon fibers: Using surface modification as a route to enhanced physical performance. Composites Science and Technology, 2022, 218, 109217.	3.8	11
64	Multiple Hydrogen Bond Channel Structural Electrolyte for an Enhanced Carbon Fiber Composite Battery. ACS Applied Energy Materials, 2022, 5, 2054-2066.	2.5	8
65	Interior morphological feature of PAN nascent fibers and precursor fibers revealed by ultrathin section and solution etching. Polymer, 2022, 239, 124431.	1.8	4
66	Tailoring the Stabilization and Pyrolysis Processes of Carbon Molecular Sieve Membrane Derived from Polyacrylonitrile for Ethylene/Ethane Separation. Membranes, 2022, 12, 93.	1.4	3
67	Structural design and mechanism analysis of hierarchical porous carbon fibers for advanced energy and environmental applications. Journal of Materials Chemistry A, 2021, 10, 10-49.	5.2	23
68	A one-step hot pressing molding method of polyacrylonitrile carbon fibers: influence on surface morphology, microstructure and mechanical property. Journal of Materials Science, 2022, 57, 2277-2291.	1.7	5
69	Photocatalytic activity of polyacrylonitrile under simulated solar illumination. Chemical Engineering Journal, 2022, 434, 134697.	6.6	10
70	Reaction Kinetics and Process Model of the Polyacrylonitrile Fibers Stabilization Process Based on Dielectric Measurements. Materials, 2022, 15, 1222.	1.3	3
71	Continuous, pilot-scale production of carbon fiber from a textile grade PAN polymer. Materials Today Communications, 2022, 31, 103231.	0.9	3
72	Fabrication of crystalline submicro-to-nano carbon wire for achieving high current density and ultrastable current. Microsystems and Nanoengineering, 2022, 8, 15.	3.4	2

	С	CITATION REPORT	
#	Article	IF	CITATIONS
73	Exploring polymer precursors for low-cost high performance carbon fiber: A materials genome approach to finding polyacrylonitrile-co-poly(N-vinyl formamide). Polymer, 2022, 243, 124570.	1.8	7
74	Study on the structural evolution of polyacrylonitrile fibers in stepwise heat treatment process and its relationship with properties. Journal of Applied Polymer Science, 2022, 139, .	1.3	5
75	Cost-effective carbon fiber precursor selections of polyacrylonitrile-derived blend polymers: carbonization chemistry and structural characterizations. Nanoscale, 2022, 14, 6357-6372.	2.8	20
76	Continuous Yarn Electrospinning. Textiles, 2022, 2, 124-141.	1.8	5
77	The impact of guanidine carbonate incorporation on the molecular structure of polyacrylonitrile precursor fiber stabilized by a multistep heat treatment strategy. Polymer Engineering and Science, 2022, 62, 1081-1095.	1.5	3
78	Fundamental and recent progress on the strengthening strategies for fabrication of polyacrylonitrile (PAN)-derived electrospun CNFs: Precursors, spinning and collection, and post-treatments. Journal of Industrial and Engineering Chemistry, 2022, 110, 329-344.	2.9	9
79	Extending the Gutowski model to kidney-bean and elliptically shaped fibers. Journal of Composite Materials, 2022, 56, 1313-1318.	1.2	0
80	Permeability simulation of kidney-bean shaped carbon fibers. Materials Today Communications, 202. 103385.	2, 31, 0.9	0
81	The beneficial effect of eco-friendly chemical impregnation on the thermal stabilization process of poly(hexamethylene adipamide) multifilament. Journal of Molecular Structure, 2022, 1259, 132718.	1.8	1
82	Biobased Carbon Fiber Composites with Enhanced Flame Retardancy: A Cradle-to-Cradle Approach. A Sustainable Chemistry and Engineering, 2022, 10, 1059-1069.	ACS 3.2	20
83	Wet-Spun Side-by-Side Electrically Conductive Composite Fibers. ACS Applied Electronic Materials, 2022, 4, 1979-1988.	2.0	11
84	Formation and structure of iodine complex of polyacrylonitrile studied by vibrational spectroscopy. Polymer, 2022, 249, 124828.	1.8	2
85	Microstructural evolution of polyacrylonitrile fibers during industry-mimicking continuous stabilization. Carbon, 2022, 195, 165-173.	5.4	13
86	Carbon fibers derived from commodity polymers: A review. Carbon, 2022, 196, 422-439.	5.4	24
87	A review of polyethyleneâ€based carbon fiber manufacturing. , 2022, 1, .		12
88	Carbon fiber polypropylene interphase modification as a route to improved toughness. Composites Part A: Applied Science and Manufacturing, 2022, 159, 107001.	3.8	14
89	Dimensional Optimization for ZnO-Based Mechano-ATRP with Extraordinary Activity. Journal of Physical Chemistry Letters, 2022, 13, 4884-4890.	2.1	15
90	New insight into structure-property correlation of polyacrylonitrile precursor fibers and resultant carbon fibers. Journal of Polymer Research, 2022, 29, .	1.2	5

#	Article	IF	CITATIONS
91	Preparation of plasticized spinning polyacrylonitrile fibers using 1-butyl-3-methylimidazolium chloride: A review. Journal of Engineered Fibers and Fabrics, 2022, 17, 155892502210818.	0.5	0
92	Improving Transverse Compressive Modulus of Carbon Fibers during Wet Spinning of Polyacrylonitrile. Fibers, 2022, 10, 54.	1.8	0
93	Gold Nanoparticle/Carbon Fiber Hybrid Structure from the Eco-Friendly and Energy-Efficient Process for Electrochemical Biosensing. ACS Sustainable Chemistry and Engineering, 2022, 10, 8815-8824.	3.2	6
94	Electrospinning-Based Carbon Nanofibers for Energy and Sensor Applications. Applied Sciences (Switzerland), 2022, 12, 6048.	1.3	19
96	Insight into the formation of conjugated ladder structure of polyacrylonitrile by X-ray photoelectron spectroscopy. Measurement: Journal of the International Measurement Confederation, 2022, 200, 111565.	2.5	3
97	Effect of pre-oxidation temperature and heating rate on the microstructure of lignin carbon fibers. International Journal of Biological Macromolecules, 2022, 216, 388-396.	3.6	10
98	Controllable Fabrication of Flexible and Foldable Carbon Nanofiber Films. Advanced Materials Interfaces, 2022, 9, .	1.9	2
99	Fabrication and characterization of ZrC nano-ceramics derived from a single-source precursor and its feasibility as ZrC/C fibers in structure and function. Ceramics International, 2022, 48, 35011-35022.	2.3	2
100	Design and Analysis of Multi-Layered Composite Panels for In-Plane Loadings. Materials Science Forum, 0, 1068, 37-46.	0.3	0
101	Evolution of microstructure within carbon fiber during pre-carbonization revealed by mean field theory. Composites Communications, 2022, 34, 101272.	3.3	4
102	High Performance Carbon Fiber Structural Batteries Using Cellulose Nanocrystal Reinforced Polymer Electrolyte. ACS Applied Materials & Interfaces, 2022, 14, 45320-45332.	4.0	9
103	Effect of the comonomer addition sequence in the synthesis of an acrylonitrile terpolymer on the solution rheology and fiber properties. Mendeleev Communications, 2022, 32, 652-654.	0.6	7
104	Applying Evolutionary Multitasking for Process Parameter Optimization in Polymerization Process of Carbon Fiber Production. Applied Sciences (Switzerland), 2022, 12, 9378.	1.3	1
105	In Situ Electrothermal Approach for the Synthesis of High-Performance Carbon Fiber. ACS Sustainable Chemistry and Engineering, 2022, 10, 13849-13856.	3.2	1
106	Effects of ambient pressure on structural characteristics of polyacrylonitrile preâ€oxidized fibers. Journal of Applied Polymer Science, 0, , .	1.3	1
107	Multifunctional ultralight, recoverable, piezoresistive, and super thermal insulating SiC nanowire sponges. Journal of the American Ceramic Society, 2023, 106, 1299-1308.	1.9	1
108	Lignin for energy applications – state of the art, life cycle, technoeconomic analysis and future trends. Green Chemistry, 2022, 24, 8193-8226.	4.6	85
109	Recyclable Amino-Phosphorylated Polyacrylonitrile Fiber for Gd(III) Adsorption in Aqueous Solution. ACS Applied Polymer Materials, 2022, 4, 8396-8406.	2.0	2

#	Article	IF	CITATIONS
110	Controllable Preparation and Strengthening Strategies towards High-Strength Carbon Nanotube Fibers. Nanomaterials, 2022, 12, 3478.	1.9	3
111	Low temperature synthesis of carbon fibres from post-consumer textile waste and their application to composites: An ecofriendly approach. Diamond and Related Materials, 2022, 130, 109504.	1.8	1
112	Melt-Spinnable Polyacrylonitrile—An Alternative Carbon Fiber Precursor. Polymers, 2022, 14, 5222.	2.0	5
113	Biomimetic Microadhesion Guided Instant Spinning. Nano Letters, 2022, 22, 9396-9404.	4.5	4
114	Influence of Temperature and Dose Rate of Eâ€Beam Modification on Electronâ€Induced Changes in Polyacrylonitrile Fibers. Macromolecular Chemistry and Physics, 0, , 2200265.	1.1	1
115	PAN Bazlı Nanofiberlerin Elektroeğirme ile Üretiminde Proses Değişkenlerinin İstatistiksel Modellenmesi. Journal of Polytechnic, 0, , .	0.4	0
116	Ordered and amorphous phases of polyacrylonitrile: Effect of tensile deformation of structure on relaxation and glass transition. Polymer, 2023, 277, 125969.	1.8	1
117	Carbon Fiber-Reinforced Geopolymer Composites: A Review. Fibers, 2023, 11, 17.	1.8	9
118	Carbon Fibers: From PAN to Asphaltene Precursors; A State-of-Art Review. Journal of Carbon Research, 2023, 9, 19.	1.4	3
119	Recent advancements in lignocellulose biomass-based carbon fiber: Synthesis, properties, and applications. Heliyon, 2023, 9, e13614.	1.4	13
120	Carbon Fibers for Bioelectrochemical: Precursors, Bioelectrochemical System, and Biosensors. Advanced Fiber Materials, 2023, 5, 699-730.	7.9	6
121	Lignin derived carbon fiber and nanofiber: Manufacturing and applications. Composites Part B: Engineering, 2023, 255, 110613.	5.9	22
122	Synthesis of PAN-based carbon fiber precursors containing fumaric acid or maleic acid as novel comonomers. Molecular Crystals and Liquid Crystals, 0, , 1-11.	0.4	0
123	Flexible Large-Area Graphene Films of 50–600Ânm Thickness with High Carrier Mobility. Nano-Micro Letters, 2023, 15, .	14.4	11
124	Mode <scp>I</scp> and <scp>II</scp> interlaminar fracture toughness of glass/carbon interâ€ply hybrid <scp>FRP</scp> composites: Effects of stacking sequence and testing temperature. Polymer Composites, 2023, 44, 3622-3633.	2.3	3
134	Smart textiles for self-powered biomonitoring. , 2023, 1, .		38
145	Applying Multi-Fidelity Optimization for Process Parameter Optimization in Polymerization Process of Carbon Fiber Production. , 2023, , .		0
146	Modified Robust Optimization Over Time for Process Parameter Optimization in Pre-Oxidation Process of Carbon Fiber Production. , 2023, , .		0

#	Article	IF	CITATIONS
162	Sustainable Raw Materials. Textile Science and Clothing Technology, 2023, , 59-128.	0.4	0