Curriculum Vitae

Candidate: HM

As of June 1, 2026

Knowledge, Technologies and Work Experience

- Organic synthesis and polymerization technology
- Molding and processing technology for inorganic and organic materials
- Dry and wet spinning technology
- Dry and wet film casting and processing technology
- Papermaking (including nonwoven fabric) technology and paper processing technology
- Manufacturing plant and process design technology
- Production line operation management technology
- QA/QC knowledge: completed external QC seminars (5 days x 4 courses), involved in establishing ISO9001
- Thorough knowledge of coating equipment and anilox rolls
- Thorough knowledge of coating technology
- Machine tool machining, fabricated-vessel welding, and machine assembly and adjustment (including finishing) technology
- In-house major training history: statistics education, patent education, reliability course (external), facilitation, marketing, creativity development, etc.
- Group management experience

Company / Period	Role / Details
Japan Medical Supply Co., Ltd.	Leader of the machine tool department (about 10 subordinates)
Teijin Limited (1) From March 1992	Leader of the processing line (about 10 subordinates) in meta-aramid fiber application development: project management, work instruction, labor management, logistics management, budget-versus-actual management, etc.
Teijin Limited (2) From October 1997	Leader of the basic research group (3 subordinates): work instruction, labor management, etc.
Teijin Limited (3) From April 1994	Leader of the battery separator basic research group (5 subordinates): work instruction, labor management, etc.
Teijin Limited (4) From April 2009	Leader of the pilot plant operation and trial production group (about 5 subordinates): project management, work instruction, labor management, etc.
Teijin Limited (5) April 2011 - October 2017	Leader of the group that started up the production line at the Korean plant (about 15 Korean staff): start-up planning, trial production planning, work instruction, etc.

Work History

Date	Position / Duties
April 1977	Joined Japan Medical Supply Co., Ltd.; assigned to the Third Manufacturing Department - In charge of design and manufacture of automatic assembly machines (medical products) In charge of mechanical drawing, machine tools, and assembly and finishing
January 1981	Joined Teijin Limited; seconded to Teijin Lacquer Co., Ltd. - Assigned to the oil well steel pipe thread manufacturing department
April 1986	Transferred to the Production Technology Research Laboratory, Teijin Limited; assigned to the Meton promotion team - In charge of Meton resin development and improvement * Meton: olefin-based cross-linking type thermosetting resin
March 1992	Transferred to the Third Development Department, New Business Division, Teijin Limited - In charge of meta-aramid fiber application development and meta-aramid paper processing
April 1995	Transferred to the Meta-aramid Pulp Development Department, New Business Development Division, Teijin Limited - In charge of meta-aramid pulp production technology development
October 1997	Transferred to Section 2, Polymer Materials Research Laboratory, Teijin Limited

Date	Position / Duties
	- Study of polyethylene resin x inorganic material applications (* ceramic capacitor applications) - Development of new polymers - Wet fiber spinning technology development: study of organic polymer dissolution + coagulation (substitution) technology - Conjugate (islands-in-the-sea) fiber spinning technology development: study of islands-in-the-sea polymer dispersion and melting technology; established submicron fibers (islands), etc.
April 1999	Transferred to Section 3, Polymer Materials Research Laboratory, Teijin Limited - Development of lithium-ion battery separators Study of base film material and structure Study of coating layer material and composition - Development of lithium-ion battery separator manufacturing technology Study of WET coating technology - Study of laboratory manufacturing equipment: developed the coating line process Studied and developed the simultaneous double-sided WET coating method Studied and developed the wet process: established the material balance and implemented concentration control of each bath Studied and developed the drying process Established the basis of the current production plant process
April 2004	Teijin Limited, Polymer Materials Research Laboratory, Section 3 In charge of electric double-layer capacitor development - Coating technology development - In charge of nonwoven fabric substrate development: jointly with another company, developed a thin (approx. 20μ) wet-laid nonwoven fabric using polyester fiber and aramid fiber; later registered as a production grade in the nonwoven fabric manufacturer's product line
April 2005	Transferred to the New Business Promotion Division, Teijin Limited In charge of development of a new polyimide resin (rigid polyimide) - Development of polyimide thermal expansion coefficient control technology: achieved a low thermal expansion coefficient (<10μ) by studying compositions and composition ratios - Development of flexible polyimide film: for solar cell applications, jointly with a public research and development corporation, achieved high conversion efficiency with organic materials = the highest conversion efficiency at the time
April 2009	Teijin Limited, New Business Promotion Division In charge of development of the lithium-ion battery separator production process - Scale-up study: laboratory scale to pilot plant - Study and establishment of speeding up the simultaneous double-sided WET coating method Conducted tests at many domestic coating equipment manufacturers and established a simultaneous double-sided and high-speed coating method - Study and establishment of the wet (in-bath) conveyance method Established low-tension film conveyance and a method for suppressing meandering - Study of drying methods Studied a highly efficient film drying method and established the drying process of the current production equipment - Study and introduction of online control equipment Studied coating weight measurement methods and introduced the equipment Introduced a defect inspection machine Introduced an online film thickness gauge Studied and established a method for controlling the concentration of the substitution liquid, and introduced the equipment
April 2011	Teijin Limited, New Business Promotion Division Participated in the construction of the lithium-ion battery separator production plant and was in charge of its start-up - Scale-up from pilot plant to production machine - Study and design of the coating line process - Start-up of the coating line, establishment of conditions, and technical guidance - In charge of slitting equipment introduction and technical study
April 2012	Teijin Limited, New Business Promotion Division Participated in the addition of the second and third lines at the lithium-ion battery separator

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	production plant and was in charge of start-up - Start-up of coating lines - Study of coating line improvements - Slitting technology study Established Teijin's own cutting method (not shear cutting) - Also in charge of production technology and process improvement studies
From April 2017	Transferred to the Battery Components Business Promotion Team, Teijin Limited - In charge of new grades and production technology development for lithium-ion battery separators
September 2018	Teijin Limited, retired at mandatory retirement age
From October 2018	Teijin Limited, re-employed
August 2019	Teijin Limited, resigned
From August 2019	Chinese separator manufacturer Company A, advisory contract - Lithium-ion battery separator equipment development
February 2020	Chinese separator manufacturer Company A, advisory contract ended
December 2020 - February 2021	Chinese technical consulting company Company B, technical consulting contract (3-month trial period) - Web-based guidance on lithium-ion battery coated separator technology and production technology development at a Chinese state-owned enterprise
September - December 2021	Chinese technical consulting company Company B, technical consulting contract (full contract) - Advice and guidance on lithium-ion battery coated separator technology and production technology development at a Chinese state-owned enterprise
December 2021 - February 2022	Chinese separator manufacturer Company C, advisory contract - Lithium-ion battery coated separator technology and production technology development, technical guidance
June 2022 - June 2023	Japanese equipment manufacturer Company D, advisory contract - Roll to Roll equipment development support - Slitter equipment development support
June 2023	Japanese equipment manufacturer Company D, advisory contract ended
From October 2022	Japanese precision resin manufacturer Company E, advisory contract - Support for film-forming technology development of newly developed polymers - Technical support for new polymer development
December 2023 - December 2024 (ended)	Japanese equipment manufacturer Company D, advisory contract renewed - Slitter equipment development support
From August 2025	Japanese chemical manufacturer Company F, advisory contract - Polyimide LIB separator development support