Minchul Kim
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Professional Summary

Senior Materials Engineer with 14+ years leading MIM/CIM commercialization in automotive (IATF 16949) and medical device (ISO 13485) industries.

Specialized in formulating and scaling 45–67 vol% high-solid-loading metal and ceramic feedstocks — directly transferable to battery electrode slurries, ceramic-coated separators, and solid-state electrolytes.

Holder of 5 Korean patents and 1 SCI publication.

Professional Experience

Plant General Manager – MIM Production Line
AUFlex Co., Ltd. (Electronics & Precision Components), Korea
07/13/2020 – 06/01/2023

- Built greenfield 200 kg/batch MIM facility from foundation to full production
- Scaled lab recipes (100 g) to 250 kg commercial batches with ±1 % consistency
- Led 30+ staff and drove SPC programs, increasing first-pass yield from 78 % to 95 %

Medical Device Development Team Senior Engineer
Dentium Co., Ltd.(Global Dental Implant Leader) / Genoss Co. Ltd., / Artificial Organ Research Center Co., Ltd., Korea
03/02/2018 – 07/11/2020

- Led ISO 13485-certified commercialization of MIM/CIM orthodontic and implant components
- Developed 50–62 vol% ceramic feedstocks for complex, defect-free geometries
- Secured FDA clearance and CE marking for multiple Class II medical devices
- Development of Titanium Powder Manufacturing Process using Gas Atomization

Mass Development Team Leader

Korea PIM Co., Ltd. (Tier-1 Supplier to Hyundai Motor Group), Korea

11/04/2013 – 03/26/2018

• Managed APQP/PPAP for 30+ automotive powertrain & turbocharger parts (IATF 16949)

• Invented high-loading MIM binder system (55–67 vol%) — granted Korean patent

• Reduced scrap 35 % through DOE-optimized debinding and sintering processes

• Development of Titanium (Ti) Investment Casting and Powder Sintering Technologies

R&D Team Leader – Precision Components

Ceratrac Co., Ltd. (Textile Machinery Parts), Korea

04/01/2011 – 11/01/2013

• Established MIM/CIM process for high-wear-resistant ceramic components

• Led ISO 9001 & ISO 14001 certifications

• Pioneered sub-micron and nano-powder dispersion techniques

Education

M.S. Materials Science and Engineering Yeungnam University, Korea

03/02/2009 – 02/22/2011

B.S. Materials Science and Engineering Yeungnam University, Korea

03/02/2002 – 02/20/2009

Patents (5 granted)

• KR10-1626878 (2016) – Binder Composition for Metal Injection Molding

• KR10-1649584 (2016) – Heat-resistant Parts Using Metal Granule Powder

• KR10-1522440 (2015) – Method for Joining Ceramic Materials

• KR10-1434971 (2014) – Al_2O_3 Composite Nozzle for Spinning Processing

• KR10-1218968 (2013) – Anode Material for Solid Oxide Fuel Cells and Method for Manufacturing the Same

Publication

• Journal of Power Sources 195 (2010) – Fabrication of anode support for solid oxide fuel cell using zirconium hydroxide as a pore former

Key Technical Skills

• High-solid-loading feedstock/slurry formulation (45–67 vol%), Mixing
• Sub-micron & nano-powder dispersion, High-shear rheology
• Injection molding, Powder metallurgy, Extrusion, Tape-casting,
• HIP(Hot isostatic press), CIP(Cold isostatic press), Spray-dry
• De-binding, Sintering optimization, Metal powder atomization
• Defect analysis (SEM/EDS, XRD, PSA, Rheometry, TG-DTA)
• Quality systems (IATF 16949, ISO 13485, ISO 9001/14001)
• Development (DOE, FMEA, APQP/PPAP)
• Statistical tools (POP system, MINITAB Statistical Analysis)
• Software (Minitab, Origin, SolidWorks, CATIA, Moldflow)