

James B. FitzPatrick

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225 Rochelle Ave Philadelphia, PA 19128

Creative and fast-learning Materials Engineer with academic and occupational experience in polymer science, nanotechnology, and biomaterials. Secured patent for product development at Crayola.

RELEVANT EXPERIENCE

ARKEMA INC., King of Prussia, PA

Polymer Engineer, Fluoropolymers Industrial R&D, November 2019 – September 2022

- Formulated and cast hollow fiber water filtration membranes from PVDF solutions and analyzed fibers for relevant properties
- Ran DOEs for new membrane technologies including hydrophilic polymer blends and more sustainable solvents

EVONIK INDUSTRIES AG, Horsham, PA

Lab Technician, Oil Additives Division, Process Group, July 2018 – November 2019

- Synthesized polymer blends in oil and designed experiments to scale up processes from smaller reactors to plants
- Analyzed products using GPC, GC, etc. to achieve ideal viscosity, molecular weight, and other properties

AGILENT TECHNOLOGIES, INC., Wilmington, DE

Procurement Engineer Co-op, Research and Development, April 2017 – September 2017

- Determined source of fault in non-conforming GCMS components with the aid of SEM and EDS analysis
- Created and edited CAD drawings of complex components to maintain consistency with product specifications

CRAYOLA, Easton, PA

Product Development Co-op, Research and Development, April 2016 – September 2016

- **Received patent for formulation of modeling compound – Patent No. US 10,138,358 B2**
- Designed new product concepts for consumers and formulated corresponding inks and modeling compounds

ENGINEERING DESIGN PROJECTS

3D PRINTING PEEK SPINAL FUSION CAGES, Drexel University

Senior Design Team Member, September 2017 – May 2018

- Annealed 3D printed polymer spinal fusion cages to study effects on mechanical properties and biocompatibility
- Increased crystallinity of spinal fusion cages by ~7% and observed positive effects on strength and elasticity

NUMERICAL MODELING OF CAST FILM EXTRUSION, Drexel University

Researcher and Programmer, September 2017 – December 2017

- Used MATLAB to simulate necking in thin-film polymer extrusion and optimize parameters
- Implemented governing equations behind extrusion mechanisms into code using 4th order Runge-Kutta method

SKILLS

Software: Microsoft Office; Autodesk Inventor, Creo, AutoCAD; MATLAB; Python (Intermediate); Arduino; SAP, JMP

Material Characterization Techniques: SEM, TEM, EDS, GPC, GCMS, FT-NIR/FTIR, Mechanical Failure Analysis, Ion Milling

Other Skills: Microfabrication, Microfluidics, Photolithography, Analytical Method Development, Public Speaking, 5S

EDUCATION

DREXEL UNIVERSITY, Philadelphia, PA

Bachelor of Science in Materials Science and Engineering, September 2013 – June 2018

Concentration in Nanomaterials and Nanotechnology, Minor in Business Administration, 3.45 Cumulative GPA

HONORS AND AWARDS

AJ Drexel Academic Scholarship, Drexel University – 2013-2018
Crouse Engineering Scholarship, Drexel University – 2015

Dean's List, Drexel University – 2013-2018
Eagle Scout, Boy Scouts of America, 2013

ACTIVITIES

Drexel Men's Wrestling, 2013 – 2018

Beat the Streets Mentor Program, 2014 – Present