

# Justin de Boer

## Process Engineer

Philadelphia, PA - Email me on Indeed: [indeed.com/r/Justin-de-Boer/1a9719ab1b47461f](https://www.indeed.com/r/Justin-de-Boer/1a9719ab1b47461f)

As a chemical engineer I strive to utilize my knowledge, education, and creativity to provide high quality products through optimizing processes.

### WORK EXPERIENCE

#### Process Engineer

Revision Military - Essex Junction, VT - June 2011 to April 2013

chemical coating)

##### Responsibilities:

- Involved in the production and qualification of ballistic eyewear sold to US and UN forces
- Continuous process and manufacturing improvements on the coating line
  - o Dip Coating - Application of a primer and hard coating
  - o Flow Coating - Application of a hard and anti-fog coatings
  - o Lean manufacturing - Scheduling, inventory, and work flow
  - o Yield impact
  - o Viscosity/Solids control modeling via coating and solvent packages
- Managed short and long term projects in overall manufacturing
- Implementation of lean manufacturing tools/principles
  - o 5S
  - o Visual Management
  - o 5 Why's
  - o Kaizen
  - o Standard Work
- Creating, maintaining, and implementing Standard Operating Procedures (SOP's)
- Troubleshooting mechanical failures as well as dip and flow coating processes to reduce optical defects
- Maintain ballistic and optical specifications for quality
  - o US and UN Specifications
  - o Canadian and European Specifications
  - o Revision Military's Internal Specifications
- Provide 24 hour 7 day on-call on-site support for off hour shifts
- Mentoring new engineering hires and interns by providing knowledge and technical information regarding process parameters, chemical specifications, business operations, and manufacturing practices

#### Biopolymer Researcher

FMC - Ewing, NJ - June 2010 to June 2011

##### Responsibilities

- Controlled and maintained an R&D encapsulation process for carrageenan (non-animal gelatin substitute) formulations
- Evaluated possible processes to enter the pharmaceutical market by making the process GMP and GLP approved
- Determined possible process and encapsulation parameters', mixing temperature, pressure, shear, time, encapsulation speed, injection time, delay time, etc.

- Verified all specification for equipment and raw products meet desired experiment requirements
- Analyzed product properties, disintegration, hardness/burst tests, pH, elasticity, color, gradient profiles, viscosity, particle size etc.

### **Material Science Engineer**

FMC - New Brunswick, NJ - February 2011 to May 2011

For this position I worked nights upon leaving my day job at FMC to help alleviate the work loads of fellow BMS colleagues, and most of the work conducted was under little to no supervision.

Responsibilities:

- Analyzed drug substance & drug product samples using TGA, DSC, PXRD, and GADDS
- Calibrated laser light scattering particle size instruments, DSC, and TGA
- Documented all of the data collected using an electronic notebook system
- Conducted release testing (GMP & GLP) of drug substance & drug product
- Expertise in:
  1. Thermal Gravitational Analysis (TGA)
  2. Differential Scanning Calorimetry (DSC)
  3. Capillary Powder X-Ray analysis - Transmission Geometry
  4. Flat plate X-Ray analysis - Bragg-Brentano Geometry & Parallel Beam
- GMP & GLP documentation and practices.

### **Environmental Health & Safety Specialist**

Cookson Electronics - South Plainfield, NJ - January 2010 to June 2010

Expertise:

- Ensured compliance with OSHA, WHIMS, and other international health safety organizations.
- Managed, reviewed, and updated Material Declarations as well as Material Safety Data Sheets (MSDS)
- Researched health law documentation
- Calculated concentration adjustments to reflect proper proportions of solid alloys and chemical fluxes
- Utilized various software associated with documentation and specification control and recording

### **Material Science Engineer**

FMC - New Brunswick, NJ - September 2007 to April 2008

Six month work internship via Drexel's Co-op Experience

Daily Responsibilities:

- Analyzed of drug substance & drug product samples using TGA, DSC, PXRD, and particle size
- Conducted calibration checks of the laser light scattering particle size instruments, DSC, TGA
- Documented all of the data collected using an electronic notebook system - VelQuest
- Conducted release testing (GMP & GLP) of drug substance & drug product
- Expertise in:
  1. Thermal Gravitational Analysis (TGA)
  2. Differential Scanning Calorimetry (DSC)
  3. Capillary Powder X-Ray analysis - Transmission Geometry
  4. Flat plate X-Ray analysis - Bragg-Brentano Geometry & Parallel Beam
  5. Rheological analysis
  6. Particle Size method development (Wet & Dry methodologies)
  7. Scanning Electron Microscope (SEM)
- Supervised the training of new employees
- Assisted in the development a liquid phase particle size method

- GMP & GLP documentation and practices.

#### Research

- Mass Production of Stem Cells

1. Primary concept: was to take a small culture of reprogrammed stem cells and have a manufacturing scale form of production. The design consisted of ten batch reactors having a staggered operation schedule, simulating a continuous process. The reactors used in this design were Verax 1000: Fluidized Bed Reactors. The main process took reprogrammed adult stem cells and converted them into pancreatic cells (beta cells) then loaded the cells into collagen beads. These reactors took approximately three weeks to reach completion, and would take another 2-3 days for packaging and cryogenically freezing the final product. Most of my contribution for the design was the modeling of the reactor and loading of the cells in to the collagen beads.

- Organic Light Emitting Diodes (OLEDs)

2. The main research done on OLEDs was the determination of an organic compound capable of emitting a blue light for more than or equivalent to 100,000 hours. OLEDs are on the verge of replacing LCD and plasma screen displays, due to their superior quality and inexpensive manufacturing. The main result of the research concluded that triarylamines were the best prospected compounds.

#### EDUCATION

##### **Bachelor of Science in Chemical Engineering**

Drexel University - Philadelphia, PA

June 2009

#### ADDITIONAL INFORMATION

- Computer:

Microsoft Office Maple

Aspen Basic Java

Visio Photoshop

EZ Solver VelQuest

Lotus Notes SAP

SyteLine SolidWorks

- Laboratory Instruments(Vendor):

TGA(TA Instruments) DSC(TA Instruments)

X-Ray Diffraction(Phillips, Bruker) Particle Size Characterization(Malvern)

Cohesion Testing Rheological Properties

SEM

- Experiments:

1. Titration Methods:

Acid-Base Redox

Complex Ion

2. Chromatography Methods:

Thin Layer Column

Gas

3. Other Experiments:

Gel electrophoresis Esterification  
ELISA Condensations Crystallization Filtration  
pH Disintegration