

# Keisha Antoine, PhD, PE

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**Professional Summary.** Process/Project Engineer with a history of working either independently or on international cross-functional teams to complete project objectives to the satisfaction of customers requiring equipment specification, process design, commissioning and technology transfer services. Extensive experience in project documentation for MOC for continuity of business and IP capture.

## Core Qualifications

- Registered Professional Engineer (TX No. 127429)
- Lead cross-functional teams to develop basis of design and process specifications for capital projects.
- Serve as point of contact for external consultants; guiding their work and integrating work product into the project
- Equipment sizing & selection. Vendor/consultant management & selection through onsite vendor visits and by leveraging relationships with procurement and intellectual property department to enforce NDAs
- Develop budget justification, appropriations requests (ARs) for new capital projects and capital improvement projects.
- Facilitator for Process Hazard Analysis (PHA) reviews – HAZOPs, What-If Analysis, FMEA – for safe and efficient deployment of equipment

## Work Experience

### Prairie View A&M University

- Lecturer, Department of Chemical Engineering. Courses taught: Introduction to Materials Science, Thermodynamics I, Material & Energy Balances, Chemical Engineering Laboratory.

### Vision Equipment LLC

#### Sales

- Product advisor for water/wastewater process equipment for municipalities and industry.

### Antoine Technical Consulting LLC

#### Principal

July 2015 – Present

- Provide telephone consultations on pilot processes and for business consulting entities
- Develop scopes of work for private enterprises along with budgetary estimates
- Sales & Marketing, Business Development for water/wastewater equipment for municipal and industrial fields
- Publish newsletter, "Process, Air & Water"

### Corning Incorporated

#### Senior Chemical Engineer

September 2012 – May 2015

- Engineering lead to develop engineering requirements, process flow diagrams, P&IDs; size and procure equipment for a space for the storage and conveyance of flammable liquids per NFPA 30. Used results of FMEA with cross-functional project team and vendor guidance to develop maintenance strategy and make spare part recommendations. Managed documentation according to cGMPs and provided my signature for project validation as the lead engineer. Provide regular cost & schedule updates to stakeholders enabling timely decision-making and corrective actions to be taken during design and procurement process. Maintained strong working relationship with procurement to push through and close out contracts, facilitate vendor payment
- Led development work of technology to enable homogenization of salt bath melts for ion exchange of glass. Work led to one patent application. Supported onsite deployment of development technologies at contract manufacturer in China.
- Provided engineering estimations of precious metal concentrations in process streams to establish replenishment schedules and as a basis to determine cost-effective precious metal recuperation and waste treatment methodologies.

#### Chemical Process Engineer

November 2011 – September 2012

- Led international cross-functional teams in the development of equipment and process requirements for capital projects in Hungary. Participate in vendor and equipment selection processes.
- Develop cost estimates and author appropriation requests totaling ~\$1.5MM for equipment for a capital expansion project.
- Led project to evaluate new material for glass-contact refractory that would provide improved electrical resistivity over incumbent without adversely affecting product attributes. Evaluated material at vendor site in France and was responsible for communication of recommendations to stakeholders through internal presentations and documentation.

#### Senior Scientist – Chemistry

October 2007 – November 2011

- Oversee effective working relationships with outside vendors – ensure 2-way non-disclosure agreements (NDA) between Corning and supplier are signed and the terms are met; visit suppliers and manage onsite supplier visits; author and approve product specs; order and inspect products
- Originate and author Appropriations Requests (AR) for capital equipment – recommend and lead appropriate equipment equipment upgrades and alterations totaling \$85K.

- Serve as a subject matter expert for development in the areas of glass science, melt processes, and gas/glass chemical interactions. Carry out theoretical analysis and process modeling of the manufacturing platform to provide guidance toward process optimization – plan and execute experiments; analyze data; present interpretation of results to stakeholder and make recommendations
- Deliver new process concepts toward the reduction of defects in LCD glass substrate processing to improve manufacturing yields – generate intellectual property (IP) to solve critical business issues

**Lehigh University**, Research Assistant

August 2001 - September 2007

- Determined the role of the As atom in the photodarkening process in As-Se thin films
- Investigated chemical aspect of photodarkening in As-Se thin films using conventional and synchrotron X-ray Photoelectron Spectroscopy (XPS)
- Investigated kinetics of photodarkening of As-Se thin films using *in situ* UV-VIS Optical Spectroscopy

**Emulsion Polymers Institute**, Lehigh University – *NSF Funded Summer Research*

Summer 2000

- Investigated the effect of Hexadecane and SLS concentration on the average volume-surface miniemulsion droplet diameter
- Determined the rate of droplet degradation in styrene miniemulsions in the presence of various costabilizers

**Rohm & Haas Chemical Company, Ion Exchange Resins Department** (now The Dow Chemical Company) Summer 1999

- Adapted a known operating procedure, plug-flow hydration, for use in another plant while still maintaining the acceptable product quality for retail sale
- Determined how to reduce waste sent to the wastewater treatment plant

**Emulsion Polymers Institute**, Lehigh University – *Summer Research*

Summer 1998

- Determined the extent of chain transfer to the nonionic surfactant Triton X-405 at various temperatures (50°C, 60°C, 70°C)
- Investigated the effect of the chain transfer to Triton X-405 on the kinetics of bulk polymerization of Styrene
- Investigated the effect of chain transfer to Triton X-405 at the particle/water interface in the emulsion polymerization of Styrene through the competitive growth approach

**Skills:** CHEMCAD (chemical process simulation software), PHAWorks, PHA-Pro, AUTOCAD, MS-Office (Word, Excel, Access), Fluid Mechanics of viscous fluids, Spanish (speaking, writing and reading) – advanced

**Certifications:** NCEES Registered and Licensed Professional Engineer in NY State, Six Sigma DMAIC Green Belt

**Continuing Education:** TCEQ Water Quality/Stormwater Training (October 2016)

#### **Education:**

**Lehigh University**, Bethlehem, PA

**Ph.D** in Materials Science & Engineering, September 2007

*Dissertation:* *In situ* investigation of photoinduced effects in arsenic-selenium glass films by x-ray photoelectron spectroscopy (XPS) and optical spectroscopy.

*International Collaborations:* Czech Republic, United Kingdom

**Master of Engineering** in Materials Science & Engineering, May 2004

**Bachelor of Science** in Chemical Engineering, June 2001

**GPA:** 3.62 (High Honors)

- Minor in Spanish

- *Study Abroad (MEXICO)*

Fall 1999 – Spring 2000

**Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM)**

#### **Intellectual Property:**

- 2 Patents, 5 Invention Disclosures, 24 Internal Corning Reports, 8 Peer-reviewed Publications, Process, Air & Water Newsletter, Technical Contributor, IACPE Newsletter
- *Patents:*
  - Keisha Chantelle Ann Antoine, Po-Hao Kao, Claire Jeannette Warren Ginnan, “Mixing apparatus for substrate ion exchange systems with multi-component ion exchange baths and methods of mixing such baths”, US 20140366579 A1, issued December 18, 2014
  - Keisha Chantelle Ann Antoine, Megan Aurora DeLamielleure, Irene Mona Peterson, WO 2010093571 A3, “Apparatus and Method for Reducing Gaseous Inclusions in Glass”, issued May 3, 2012

#### **Selected Leadership Positions & Memberships:**

*Member*, American Institute of Chemical Engineers (AIChE), National Society of Black Engineers (NSBE)

*Peer-referee*, National Science Foundation, Department of Energy, J. Non-Crystal Solids and Mat. Res. Bull.

*Member*, Materials Science & Engineering Advisory Council (MSEAC), Lehigh University 2013 - 2016

*Co-Founder*, Informal ChemE Sharing Sessions at Corning Incorporated 2014

*Chair*, Black Technology Network (formerly AQIT) at Corning Incorporated 2011 – 2012