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Objective

Teamwork and ability to apply skills, knowledge and leadership in a global company, while achieving a mutually beneficial relationship focusing in the development of polymeric innovative solutions to fulfill the market needs.

Education

PhD Polymer Science (08/2009 - expected graduation 05/2014)

The University of Akron

- Thesis: “Modular Surface Functionalization of Polyisobutylene-based Thermoplastic Elastomers”
- Advisor: Dr. Judit E. Puskas
- GPA: 3.52/4.0

Certificate of Management of Technology and Innovation (08/2009 – 05/2014)

- Managing People in Organizations
- Management of Technology and Innovation
- Strategic Marketing

B.S. Chemical Engineering (12 / 2005)

- Instituto Politecnico Nacional, Escuela Superior de Ingenieria Quimica e Industrias Extractivas (IPN-ESIQIE)
- Elective Subject: Polymers (5 semesters)
- Academic Excellence during the 9 semesters of the B.S.
- GPA: 8.8/10.0
- PIFI (Institutional Program of Researchers Formation) scholarship during 5 semesters
- TELMEX scholarship during 6 semesters

Employment Experience

The University of Akron

The University of Akron, Akron Ohio

PhD Polymer Science Candidate

- Carbocationic polymerization of homopolymers and block copolymers of isobutylene (dry box operation)
- In situ synthesis of hydroxy polyisobutylene with allylic end group.
- Synthesis of polyisobutylene based copolymers
- Enzymatic catalyzed post-functionalization of polyisobutylene, Transesterification and Michael Addition
- Enzymatic catalyzed synthesis of telechelic allylic polyisobutylene. (paper in progress)
- Synthesis of hydroxytelechelic polyisobutylene via thiol-click chemistry. (paper in progress)
- Protein adsorption testing on functionalized polyisobutylenes using Surface Plasmon Resonance (SPR)
- Modular surface modification of a thermoplastic elastomer with post-functionalized polyisobutylenes that contain low fouling moieties. (paper in progress)
- Xray Photon Spectroscopy (XPS) of spin coated polymers
- Spin coating of polyisobutylene on silicon wafers and gold chips
- Measurement of thickness of the spin coated polymers on silicon or gold chips substrates using ellipsometry
- Experience with air free synthesis
- Knowledge of characterization techniques such as Size Exclusion Chromatography (SEC), Proton and Carbon Nuclear Magnetic Resonance (NMR), Differential Scanning Calorimetry (DSC), Thermogravimetric Analysis (TGA), Tensile Testing, UV, FTIR, water contact angle (WCA)
- Author in Green Chemistry book in progress
- Mentor of one undergraduate student from the Biomedical Engineering department of The University of Akron (December 2011 – December 2012)
- Mentor of one exchange fullbright graduate student of the Lomonosov Moscow State University of Fine Chemical Technology, Moscow, Russia (September 2012 – July 2013)

DuPont

DuPont Performance Coatings, Mexico

Position: Planning Engineer (10/2008 – 08/2009)

- Inventory management of the imported materials of DuPont Performance Coatings business in Mexico, Tlalnepantla manufacturing facilities

DuPont Engineering Polymers, Mexico**Position: Quality Management Engineer / Manufacturing SAPR3 Key User**

(09/2007 – 10/2008)

- Continuously improve the Quality Management System of DuPont Engineering Polymers Mexico (automotive customers) including ISO/TS certification
- Perform and receive internal (DuPont Essential Quality Elements Standard, EQE) and external (ISO/TS) customers quality audits
- Perform optimization projects to obtain DuPont Green Belt Certification, knowledge of Minitab
- Conduct lean Manufacturing events including 5S events
- Management of the quality laboratory (supervising union personnel)
- Performed characterization of several polymers to develop new customers. Characterization techniques used: DSC, TGA, FTIR among others
- Manufacturing SAPR3 super key user having full responsibility of quality module implementation (including LIMS)
- Report quality performance quarterly in the Business Team meeting
- Report quality performance monthly to the global quality team
- Knowledge of twin and single screw extrusion processes
- Knowledge of master batch extrusion processes

DuPont Engineering Polymers, Mexico**Position: Quality Management and Planning Engineer (02/2006 – 09/2007)**

- *Quality Management*
 - Continuously improve the Quality Management System of DuPont Engineering Polymers Mexico (automotive customers)
 - Receive quality audits from automotive customers such as Valeo
 - Perform supplier audits such as PPG N.C. and Owens Corning following DuPont Essential Quality Elements standard (EQE)
 - Maintain the ISO/TS certification of DuPont Engineering Polymers Mexico
 - Perform MWRs, TAs, SOCs (MWR: Manufacturing Work Request, TA: Test Approval, SOC: Standard Operating Conditions)
 - Perform PPAP, FMEA, APQP for the automotive customers (PPAP: Production Part Approval Process, FMEA: Failure Mode and Effects Analysis, APQP: Advanced Product Quality Planning)
 - Management of the quality laboratory (supervising union personnel)
 - Performed characterization of several polymers to develop new customers. Characterization techniques used: DSC, TGA, FTIR, among others
 - Report quality performance quarterly in the Business Team meeting
 - Report quality performance monthly to the global quality team
 - Continuous improvement projects
 - Training as ISO 9001:2000 lead auditor
 - Plastics course training in Centro Empresarial del Plastico (polymer properties, transformation processes, polymer characterization, polymer applications, etc Included visits to companies in Germany such as Arburg, Kautex, BASF, Fischer, among others)

- *Production Planning and Scheduling*
 - Ensure the supply of raw materials for the manufacturing operation of DuPont Engineering Polymers Mexico
 - Develop the production plan for the manufacturing operation of DuPont Engineering Polymers Mexico
 - Ensure the supply of the products according to the customers and sales requirements
 - Attended quarterly meetings in Washington Works manufacturing site, Washington, W. V.
 - Interaction with staff located in USA

DuPont Engineering Polymers, Mexico

Position: Quality Management Co-op (04/2005 – 02/2006)

- Supervision and administration of the quality laboratory
- Support sales area characterizing polymers to offer DuPont materials to the customers. Characterization techniques used: DSC, TGA, FTIR among others
- Performed qualification of new suppliers
- Safety training including Process Safety Management and STOP of DuPont
- DuPont Six Sigma and Essential Quality Elements (EQE) training

Sugar Mill La Gloria, Veracruz Mexico

Position: Professional Practices (Internship) (12/2004 – 01/2005)

- Chemical Laboratory performing quality analysis to the finished and in-process product

Sherwin Williams, Mexico

Position: Professional Practices (06/2004 – 08/2004)

- Research & Development Laboratory involved with the development of new resins, polymerization process of resins and quality control for resins and coatings

Laboratory Skills

Operation of the dry box

Experience in carbocationic polymerization

Capable to work independently in the laboratory

Experience with air free systems

Experience with cryo-distillation

Characterization of polymers (SEC, NMR, DSC, TGA, FTIR, UV, WCA)

Purification of polymers and post-functionalized polymers

Familiar with purification techniques such as column chromatography for small molecules

Languages

Spanish (native speaker)

English

Professional Societies

American Chemical Society (ACS)
Rubber Division
Rubber Division Student Chapter (Treasurer 2013-present)

Personal Interests: Traveling, Hiking, Knowing different cultures, Running, Cooking

Awards

Superior Student Poster at 31st Tire Society Conference IX Center Cleveland, Ohio, 2012.

Travel Award from The University of Akron Department of Polymer Science to attend the 243rd ACS National Meeting, San Diego California, 2012.

Best Graduate Poster at Rubber Expo & Advanced Materials in Health Care, 180th Technical Symposium & Educational Symposium, IX Center Cleveland, Ohio, 2011.

Award to attend ACS Green Chemistry Summer School at McGill University, Montreal, Canada, 2011.

Presentations

Alvarez, A. A.; Puskas, J. E.; Liu, L., Modular Surface Functionalization of Polyisobutylene-based Thermoplastic Elastomers. ACS Rubber Division, 184 International Elastomer Conference, IX Center Cleveland, Ohio. 2013

Alvarez, A. A.; Luebbbers, M.; Puskas, J. E. Synthesis of Arborescent Poly(isobutylene-b-p-Methylstyrene). Thermoplastic Elastomers Topical Conference, Akron, Ohio. 2012

Alvarez, A. A.; Luebbbers, M.; Puskas, J. E. Synthesis of Arborescent Poly(isobutylene-b-p-Methylstyrene). 31st Tire Society Conference, IX Center Cleveland, Ohio. 2012 (**Awarded for superior student poster**)

Alvarez, A. A.; Luebbbers, M.; Puskas, J. E. Synthesis of Arborescent Poly(isobutylene-b-p-Methylstyrene). IUPAC Macro 2012 World Polymer Congress, Virginia Tech Campus, Blackburg, Virginia. 2012

Alvarez, A. A.; Luebbbers, M.; Puskas, J. E. Synthesis of Arborescent Poly(isobutylene-b-p-Methylstyrene). 243rd ACS National Meeting, San Diego, California. 2012 (**Received a travel award from the Department of Polymer Science**)

Alvarez, A. A.; Luebbbers, M.; Puskas, J. E. Synthesis of Arborescent Poly(isobutylene-b-p-Methylstyrene). Rubber Expo & Advanced Materials in Health Care, 180th Technical Symposium & Educational Symposium, IX Center Cleveland, Ohio. 2011 (**Awarded for presenting the best graduate poster**).

Alvarez, A. A.; Luebbers, M.; Puskas, J. E. Synthesis of Arborescent Poly(isobutylene-b-p-Methylstyrene). The University of Akron Sponsor's Day, Akron, Ohio. 2011

Alvarez, A. A.; Luebbers, M.; Puskas, J. E. Synthesis of Arborescent Poly(isobutylene-b-p-Methylstyrene). International Symposium on Ionic Polymerization IUPAC (International Union of Pure & Applied Chemistry), Akron, Ohio. 2011

References List:

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