



# North America

# 2019

# POLYURETHANE

# TRAINING WEEK

19-22 February 2019

Tampa, Florida, USA

VENUE  
CROWNE PLAZA, TAMPA WESTSHORE

Specialized Training Seminars for Engineers, Chemists and Managers in Polyurethane Industries

## SEMINAR SCHEDULE

19 February 2019 (08.30-16.30) (Code: PU-52)	<b>Polyurethane Chemistry &amp; Thermal Analysis</b> Instructor: Dr. Joseph Marcinko, USA Registration Fee: 750 US\$/Person
20 February 2019 (08.30-16.30) (Code: PU-53)	<b>Adhesives, Binders, Sealants, and Coatings</b> Instructor: Dr. Joseph Marcinko, USA Registration Fee: 750 US\$/Person
20 February 2019 (08.30-12.30) (Code: PU-54)	<b>Industrial Applications of FT-IR and FT-NIR Spectroscopy for Polyurethanes Analysis</b> Instructor: Dr. Grazyna Mitchener, UK Registration Fee: 750 US\$/Person
21 February 2019 (08.30-16.30) (Code: PU-55)	<b>Rigid Polyurethanes: Science and Technology</b> Instructor: Dr. Grazyna Mitchener, UK Registration Fee: 750 US\$/Person
21-22 February 2019 (08.30-16.30) (Code: PU-56)	<b>Flexible Polyurethane Slabstock Foams: Manufacturing &amp; Troubleshooting</b> Instructor: MA Naqi, Canada Registration Fee: 1,250 US\$/Person
22 February 2019 (08.30-16.30) (Code: PU-57)	<b>Rigid Polyurethanes with Improved Fire Resistance</b> Instructor: Dr. Grazyna Mitchener, UK Registration Fee: 750 US\$/Person

## SEMINAR CONTENT

**Industrial Applications of FT-IR and FT-NIR Spectroscopy for Polyurethanes Analysis (PU-54)**

- Introduction to FT-IR/NIR theory
- Industrial Grade Equipment
- Applications of the techniques for Analysis of Polyols, Prepolymers, Rigid foams, Flexible Foams, Elastomers, Coatings.
- Application of the Technique for Development, Raw materials and Final Products Quality Control, Troubleshooting and Benchmarking

**Rigid Polyurethanes: Science and Technology (PU-55)**

- Rigid polyurethanes chemistry theory
- Types of rigid polyurethanes
- Applications of rigid polyurethanes
- Raw materials
- Formulation principles
- Processing methods
- Recycling of rigid polyurethanes
- Polyurethane Thermal Insulation: Theory of the heat transfer process
- Different thermal insulation polyurethane products, their advantages and disadvantages
- Improving thermal conductivity by optimizing polyurethane formulations
- Improving thermal conductivity by optimizing processing parameters
- Development trends in the PU thermal insulation industry

**Flexible PU Foams: Manufacturing & Troubleshooting (PU-56)**

- Introduction to Polyurethane foams.
- Machinery for Flexible foams
- Foam Chemistry and the foaming process.
- Raw Materials and their Functions
- Formulation Flexible foams.
- Flexible foam Production.
- Flame Retardant Foam Processing
- Foam Processing.
- Foam Faults and Trouble shooting.
- Foam Testing
- Recycling Flexible PU Foams

**Rigid Polyurethanes with Improved Fire Resistance (PU-57)**

- The nature of fire and theoretical ways to prevent it.
- Fire resistance testing and standards
- Fire retardants: types, properties and applications
- Principles of developing PU formulations and designing PU products with enhanced fire resistance.
- Novel materials and technologies improving PU's fire resistance.
- Basic polyisocyanurate chemistry theory
- Properties of PIR products
- Differences between PUR and PIR technologies
- Specifics of PIR formulations and raw materials
- Specifics of manufacturing equipment for PIR production
- Review of Fire of Grenfell Tower in London 2017 and its impact on PIR industry

## SEMINAR CONTENT

**Polyurethane Chemistry & Thermal Analysis (PU-52)**

- Structure/Property Relationships in Polymers (very basic one)
- Polyurethane chemistry
- Polyols - Chemistry and Manufacturing
- Isocyanates- Chemistry and Manufacturing
- Structure/Property Relationships in Polyurethanes
- Basic Formulating Concepts
- Thermal Analysis of Polymers and Polyurethanes
- Differential Scanning Calorimetry (DSC)
- Thermogravimetric Analysis (TGA)
- Thermo Mechanical Analysis (TMA)
- Dynamic Mechanical Analysis (DMA)
- Industrial Problem Solving using Thermal Analysis Techniques

**Adhesives, Binders, Sealants, and Coatings (PU-53)**

- Adhesion Fundamentals & Mechanisms
- Surface Energy and the importance of Wetting.
- Chemistry of PU adhesives, Sealants and coatings
- Viscoelasticity and Adhesive Testing
- Polyurethane Adhesives and Binders,
- One and Two Component Adhesive Systems,
- Hot-Melt Adhesives and Polyurethane Dispersions
- Polyurethane Sealants and Silane Modified Polymers
- Polyurethane Coatings Principles and Applications,
- Specific Application Examples of PU coatings
- Thermal Analysis of Polymers and Polyurethanes

## SEMINAR INSTRUCTORS



**Dr. Grażyna Mitchener** is a director and principal consultant in Polychemtech Ltd. – a technical and business consultancy specializing in innovative PIR/PUR and other polymeric products and technologies. From 1996 to 2008 she worked for Celotex (UK), developing first in Europe PIR rigid insulation products, from initial idea to full scale manufacturing. For the first ten years of her career she was an academic researcher and lecturer in Poland, where she worked on high performance, fire and heat resistant polymers. She gained her Ph.D. in Polymer Chemistry and Technology in 1992. She is the author of 8 patents, over 30 scientific papers, several conference presentations and training workshops. For her contribution to the thermal insulation industry she was presented with the “Global Insulation Personality of 2014” award.



**Dr. Joseph Marcinko**, is Principal Scientist and President of Polymer Synergies LLC, and Principal Scientist for BioPolymer Technologies, Ltd. Dr. Marcinko has over 30 years of industrial R&D, research management, and academic experience. His interests and expertise are in the areas of polyurethane chemistry, biopolymers, adhesion science, composite materials, polymer characterization, solid-state NMR spectroscopy, and polymer structure-property relationships. He is an adjunct professor at Cumberland County College where he teaches Physical Science, Environmental Science, and Principles of Science. He also holds a secondary education teaching certification. Dr. Marcinko has authored over 30 publications, and has 6 patents and 7 patents pending.



**Mr. A Naqi** is Principal consultant and President of LinQ Tech Inc. based in Canada. A graduate in Science I started my career as ‘Production Manager’ on a continuous Foaming machine at Poly Products LLC (Oman) between 1980 -2001 while directing the company from infancy to market leader in special foams, eventually became CTO in the company. During this period added a molded foam line as well as a rebonded foam line. I have developed formulations for all kinds of special foams, including soft and super soft grades with standard polyol, a unique pre-polymer dispensing system for rebonded foam which precludes cleaning of the pump and pouring tube. Started my own consultation company in 2001 assisting producers in Canada, Middle East and Asia, teaching foam production, adjusting formulations and talking at various shows and been involved in the industry for over 30 years.

**Program Schedule:** 8.30am to 4.30pm

### Venue & Accommodation:

CROWNE PLAZA TAMPA WESTSHORE  
5303 West Kennedy Blvd. | Tampa, FL 33609  
Direct 813.405.1181 | Fax 813.288-7343 |  
[www.cptampawestshore.com](http://www.cptampawestshore.com)

**How to Register:** To register, Please register online at  
[www.polyurethane-industry.org](http://www.polyurethane-industry.org).

Contact Address

**USA:** 550 Bridgeton Pike, Suite 13 Mantua, NJ 08051USA  
**Telephone:** 856-981-4381 **E-Mail:** [drjoe@polymersynergies.com](mailto:drjoe@polymersynergies.com)  
**Web:** [polymersynergies.com](http://polymersynergies.com)  
**Joseph J. Marcinko**, Ph.D. Principal Scientist & President

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**web:** [www.polyurethane-industry.org](http://www.polyurethane-industry.org)  
**Sirinthip Boonlom**, Project Manager

## PU TRAINING WEEKS

ASIA 2019  
**POLYURETHANE**  
TRAINING WEEK

**2-4 April 2019** Bangkok, Thailand

Europe 2019  
**POLYURETHANE**  
TRAINING WEEK

**November 2019** Rome, Italy

## PU TRADE EXHIBITIONS

**PU Tech**  
ASIA 2019  
FOAM EXPO

**3-4 April 2019**  
Bangkok, Thailand

**PU Tech**  
ARAB 2019  
FOAM EXPO

**9-10 October 2019**  
Sharjah, UAE

**PU Tech**  
AFRICA 2020  
FOAM EXPO

**28-29 October 2020**  
Lagos, Nigeria