Polyurethane Industry Training Courses
Europe 2017

24-25 October 2017
Bilderberg Garden Hotel, Amsterdam

PU Formulation
Development & Optimisation
24 October 2017, Amsterdam

Development of Fire Resistant Polyurethane Products
25 October 2017, Amsterdam

Instructor
Dr. Grażyna Mitchener
UK

To register, please contact
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Launching new products is a must nowadays for every company aiming to grow and prosper. However, the process of developing new products carries a heavy risk of not delivering at all, delivering a product which is not optimum or delivering too late. The course will focus on the specifics of the “Agile” New Product Development (NPD) process applicable to the polyurethane industry. The methodology shortens the development time, lowers the development cost and ultimately significantly maximises the Product Lifetime Profit. The course will show how the best practices of teamwork across all company departments, including management, marketing, R&D and production, are so vital for successful NPD. The technical part of the course will provide a review of different raw materials used to formulate polyurethane products, the principles of choosing the optimum raw material combinations, the laboratory techniques to prove the best options and procedures helping to commission the new products into full-scale production. This course will cover the following stages of NPD in the polyurethane industry:

- Principles of minimizing time and cost of New Product Development (NPD)
- Identifying commercial and technological requirements for the new product
- Researching technical state-of-the-art
- Choosing optimum formulations/technologies
- Selecting optimum raw materials and equipment
- Laboratory scale experimentation techniques
- Scaling-up procedures

Due to their versatility, polyurethane products are finding more and more applications in which their fire resistance can make the difference between saving or endangering human life. These applications are also very often strictly regulated. Thus developing polyurethane products with fire resistance is not only important for commercial reasons but also moral ones – the products that industry supply must be safe. The course will start by explaining the natural phenomenon of fire. Then it will proceed to outline various techniques and technologies, which can be used to develop polyurethane formulations and products with different degrees of resistance to fire. Several fire retardants and the mechanisms of their interactions with fire will be explained. Also other non-chemical means, including product design impacting the ultimate product fire resistance, will be covered in some detail. The course will thoroughly explain the specifics of PIR technology as well as the most effective approaches to produce fire-resistant flexible foams. At the end of the course, new emerging techniques and materials, which are being developed to improve polyurethane fire resistance, will be highlighted. This course will cover:

- The nature of fire and theoretical ways to prevent it.
- Fire retardants: types, properties and applications
- Fire resistance testing and standards
- Principles of developing PU formulations and designing PU products with enhanced fire resistance.
- Polyisocyanurate (PIR) chemistry, technologies and manufacturing.
- Novel techniques monitoring manufacturing processes and quality of fire resistant PU products.
- Novel materials and technologies improving PU’s fire resistance.

### Instructor:

Dr. Grażyna Mitchener is a director and principal consultant in Polychemtech Ltd. – a technical and business consultancy specialising in innovative PIR/PUR and other polyurethane products and technologies. From 1996 to 2008 she worked for Celotex (UK), developing the first PIR rigid insulation products in Europe. 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 polymeric materials. She gained her Ph.D. in Polymer Chemistry and Technology in 1992. She is the author of 8 patents, 40 scientific papers, conference presentations and training workshops.

### Registration Fee/Person:

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<thead>
<tr>
<th>Course Name</th>
<th>Code</th>
<th>Registration Fee/Person, €</th>
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<tbody>
<tr>
<td>PU Formulation Development &amp; Optimisation</td>
<td>PU-17-33</td>
<td>750 €</td>
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<tr>
<td>Development of Fire Resistant Polyurethane Products</td>
<td>PU-17-34</td>
<td>750 €</td>
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### Remarks:

- The registration fee includes training documentation, lunch and refreshments
- Group Registration Discount: If 3 or 3+ delegates register for the same course, 5% discount on total registration fee.
- Venue: The programs will be held at 4-Star Hotel in Amsterdam. The venue location will be informed to all registered delegates before 30 September 2017.

### Venue

**Bilderberg Garden Hotel**  
Dijsselhofplantsoen 7, 1077 BJ  
Amsterdam The Netherlands  
Accommodation: 179 €/night + taxes

**Contact:**  
Ms. Lucie Ludema  
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### How to Register

Please download the registration form at [www.polyurethane-industry.org](http://www.polyurethane-industry.org) and send filled registration form to below address.