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We would like to announce:

## **SOLVAY International Brazing Seminar 2023**

Welcome to the **20th edition!**

### ***The Theory and Practice of the Furnace- and Flame-Brazing of Aluminium***

**Date: March 14 & 15, 2023 in Hanover/Germany**

#### **Purpose of the Seminar:**

This technical training seminar will be presented in the English language at the Conference Centre and laboratories of Solvay GmbH, in Hanover, Germany. It will provide information concerning the manufacturing practices commonly used for brazing operations and, in particular, will address the **three** fundamental aspects of the industrial-scale brazing of aluminium. These are:

- Controlled Atmosphere Brazing (CAB) of aluminium heat exchangers with non-corrosive fluxes (NOCOLOK® Flux).
- The flame brazing of aluminium.
- The methodology of how to ensure that the brazing process selected is, indeed, the one that represents 'best practice'.

#### **Who should attend this two-day seminar?**

- Technical staff who need to have a specific understanding of either one or both of the fine details of the technology of the brazing of aluminium with flames, and/or the NOCOLOK® furnace brazing process.
- Design and production engineers who are fabricating, or who are **intending** to fabricate, aluminium pipe-work assemblies and/or condensers and/or evaporators.
- Production Engineering Department Managers whose duties include day-to-day responsibility for the brazing of aluminium.
- Quality management personal of all levels in all departments including design, production, customer contract negotiations and standards including ISO 9001:2015

**Follow this link to see what you can expect when you attend this seminar**

[https://www.youtube.com/watch?v=RS8Y\\_eLnK-g](https://www.youtube.com/watch?v=RS8Y_eLnK-g)



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## SEMINAR PROGRAM

**Presenters** Dr. Sebastian Gutmann – Solvay Fluor GmbH  
Dr. Leszek Orman – Solvay Fluor GmbH  
Hynek Pawera - Solvay Flux GmbH  
Dr. Alexander Rehmer – Solvay Fluor GmbH  
Roman Barta - Solvay Flux GmbH  
Derek Davies - Technical Consultant

**The following topics will be covered throughout the two-day seminar:**

### **Introduction to brazing technology (applies to furnace and flame brazing)**

- What is brazing and what are the advantages?
- Where does brazing fit in joining technology?
- The fundamental rules of successful brazing

### **Controlled atmosphere brazing**

- Factors for successful brazing
- Requirements for cleaning methods
- Guidelines for flux application
- Brazing flux characteristics and its role in the process
- Flux application methods incl. Paint Flux and Pastes
- The furnace brazing process and brazing reactions
- Process analysis case study

### **Metallurgy and materials (applies to furnace and flame brazing)**

- Basic metallurgy
- Aluminium alloys for CAB (non-corrosive flux) furnace brazing
- Filler materials and their available forms
- General metallurgical consideration
- Joint clearances/ product fit-up
- Filler metal management - potential erosion aspects (core alloy dissolution)

### **Post Braze Flux Residue**

- Flux-coolant interactions
- Gel formation phenomena

### **Troubleshooting problems encountered in the furnace brazing of aluminium**

- Brazing failures and parameter specifics
- Identification of failure parameter
- Parameter adjustment and control
  - Temperature
  - Flux load and its uniformity of coating
  - Furnace atmosphere
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- Joint geometry
- Filler metal availability
- Cleanliness

#### **Visit to the NOCOLOK® Technical Centre**

- Tour of the Technical Centre and laboratories
- Practical demonstration of fluxing and furnace brazing

#### **Flame brazing aluminium and its alloys**

- Joint design
- Process criteria
- Brazing alloy forms
- Heat pattern development
- The methodology of Process Analysis
- International Brazing Standards

#### **Fuel gases and burners**

- Heating things!
- Gases and gas mixtures
- Burner design and operating parameters

#### **Automated flame brazing**

- Equipment complexity scale 0-10
- Machine types in common use
- Additional mechanization devices

#### **Further information:**

- All delegates will be given a folder when they arrive at the seminar room. This will contain brief notes on each of the topics that will be covered by the presenters during each of the two days of the seminar.
- **Please note that delegates will be responsible for booking and settling their own hotel bill.**
- The seminar will begin at **09:00** on **Tuesday, March 14, 2023**, and is expected to finish at about **16:45** on **Wednesday, March 15, 2023**.  
The cost of the seminar will be **€ 590 plus tax (VAT/MWSt/etc.)**
- A buffet lunch (included) will be provided during both days of the event, and all delegates are invited to attend the Informal Seminar Dinner as the guests of SOLVAY on the evening of **Tuesday March 14, 2023**.
- Invoices for attendance at the Seminar will be sent by SOLVAY directly to the delegate by e-mail and payment needs to be made **on or before February 10, 2023**.
- Should there be any COVID-19 restrictions not allowing for the seminar to take place, we will inform you beforehand.
- Please note that the available places on all of the previous Seminars were booked very quickly. As a result, and since space is limited to a maximum of 36 delegates, we would **strongly recommend** that to avoid disappointment you make your booking **on the Form that accompanies this Programme**, and return it to SOLVAY, **by e-mail please**, as soon as possible.



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**Please note:** Early registration for the Seminar is particularly important for delegates who will require a Visa to enter the countries of the European Union. The issue of a Visa can take up to 10 weeks, and often requires the applicant to present a letter of invitation to the seminar, together with his application for a Visa, to the **German Embassy in his country of residence**. Delegates who require a formal letter of invitation should indicate this fact, so that SOLVAY can arrange for one to be sent to you.

We look forward to receiving your booking in the very near future.