

EABS: European Association for Brazing and Soldering

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EABS & Solvay Fluor GmbH announce the **ninth presentation of their joint technical training seminar entitled:**

The theory and practice of the flame- and furnace-brazing of aluminium

Dates:

12th & 13th October 2010

Purpose of the Seminar:

This technical training seminar will be presented at the Conference Centre and laboratories of Solvay GmbH, in Hannover, 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:

- **The flame brazing of aluminium.**
- **The Controlled Atmosphere Brazing (CAB) of aluminium heat exchangers with non-corrosive fluxes (NOCOLOK[®] Flux).**
- **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 event?

- Technical staff who need to have a specific understanding of either one or both of the fine detail of the technology of the brazing of aluminium with flames, or the NOCOLOK[®] furnace brazing process.
- Design and production engineers who are fabricating, or who ***intend*** 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.

Seminar Programme

Day 1 - Tuesday 12th October 2010

1. Introduction to the Seminar

P.M.Roberts, EABS Chairman

2. Flame brazing aluminium

Presented by: Philip Roberts – Delphi Brazing Consultants

Derek.Davies – Flame Application Services

Session 1: Introduction to Brazing Technology

- What is brazing and what are its advantages?
- Where does brazing fit in joining technology?
- The six fundamental rules for successful brazing
- The methodology of Process Analysis

Session 2: Process Terminology

- Process definitions
- Wetting and flow
- Early brazing
- Metallurgical considerations

Session 3: Fuel gases and burners

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

Session 4: Flame brazing aluminium

- Joint design
- Process criteria
- Metallurgical considerations
- Heat pattern development

Session 5: Automated flame-brazing

- Process criteria
- Machine types in common use
- Additional mechanisation devices

Session 6: Process analysis Case study; *practical demonstrations* of the flame-brazing of aluminium; and a final review of the day.

Sessions 1 to 4 will be presented during the morning with **Sessions 5 & 6**, which will last for approximately 2¾ hours, being presented during the afternoon.

Day 2 - Wednesday 13th October 2010

3. The NOCOLOK[®] Flux Brazing Process

Presented by: Dr. Hans Swidersky and Dr. Leszek Orman - Solvay Fluor GmbH

1. An introductory overview of the process.

- Fields of application
- Products that are routinely brazed via this process

2. Controlled atmosphere brazing (Process sequence)

- Factors for successful brazing
- Requirements for cleaning methods
- Guidelines for flux application
- Brazing flux characteristics and its role in the process
- The furnace brazing process and brazing reactions

3. Metallurgy and materials

- 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)

4. 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
 - Joint geometry
 - Filler metal availability
 - Cleanliness

Scope:

- Technical presentation:
approximately four hours (**morning session**)
- Tour of the Technical Centre and demonstration of furnace brazing:
approximately two hours (**afternoon session**)

5. Further information:

- The seminar will be presented in the English language
- Both Solvay Fluor GmbH and EABS have extensive detailed information on all of the subjects that will be covered during this two-day seminar. Solvay will distribute their information to delegates at the event. EABS will give a USB Memory Stick to each delegate that will contain a full set of notes relating to the items presented by Mr Davies and Mr Roberts during the 'Flame brazing' sessions of the Seminar. The EABS technical notes will be provided as pdf documents, and when printed as hard copy will cover about 110 sides of A4 paper comprising about 52,000 words, together with pictures, (many in colour), together with Tables, and line diagrams.
- All delegates will be given a folder when they arrive at the lecture theatre. 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.
EABS will arrange hotel accommodation required by delegates to the seminar. A sufficient number of rooms have already been booked at the **Hotel am Stadtpark**. This hotel is about a seven-minute walk from the Solvay Conference where the seminar is to be held. To ensure that the hotel booking arrangements run smoothly, delegates are kindly asked to enter their booking requirements on the **Hotel Booking Form** attached to this note. The room charge will be **€93 per night**, and this **includes** the cost of breakfast.
- **Please note that Delegates will be responsible for settling their own hotel bill on departure from the hotel.**
- It is **very important** that Annette.Daubner@solvay.com is advised in cases where a Company who has already booked a place or places at the Seminar needs to replace one or more delegates with another member of their staff. This information

must reach Annette **before the 'new' delegate or delegates arrive at the Hotel am Stadtpark**. This is because Solvay has to confirm to the hotel the name of each delegate when they make the room reservation for a specific delegate. Consequently, if another person arrives whom the Hotel is not expecting they have no option but to offer the 'unexpected' delegate any other room that is currently available. This means that the room that was **originally booked on behalf of a previously named delegate** remains unoccupied overnight and, according to the Terms and Conditions of the Hotel, because it was Solvay Fluor GmbH who booked the room, the overnight charge for the empty room is billed to them! In such cases Solvay has to pass this charge on to the Delegates Company. *This is why it is so important to tell Mrs Daubner of any change of a delegate that needs to be made as soon as it is known, please!*

- The seminar will begin at **09:00 on Tuesday 12th October 2010**, and is expected to finish at about **16:45 on Wednesday 13th October..**
- The cost of the seminar will be **€400, (or £340 for UK delegates), plus tax. (VAT/MWSt/etc)**. Delegates who are **Personal Members** of EABS, or who are employed by a company that is a **Corporate Member of the Association**, will receive a discount of 10% of the above fees.
- A buffet lunch will be provided during both days of the event, and all delegates are invited to attend the Informal Seminar Dinner as the guests of EABS and Solvay Fluor GmbH on the evening of **Tuesday 12th October**.
- Invoices for attendance at the Seminar will be sent by EABS directly to the delegate by e-mail and payment needs to be made **on or before Friday 8th October 2010**.
- Please note that the available places on all eight 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 send your booking to EABS as soon as possible.

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 12 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, **(on the Seminar Registration form, please)**, so that EABS can arrange for one to be sent to you by Solvay Fluor GmbH.

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



Philip Roberts

EABS Chairman

Attachment: Seminar- and hotel booking forms.

EABS: European Association for Brazing and Soldering

Seminar Booking Form

Seminar: *'The theory and practice of furnace- and flame-brazing aluminium'*

Dates: **12th & 13th October 2010**

Venue Solvay Fluor GmbH
Hans-Böckler Allee 20
30173 Hanover
Germany

E-mail: annette.daubner@solvay.com

Please reserve.....place(s) on the above seminar, the delegate(s) will be:

<u>Title</u>	<u>Initials</u>	<u>Family name</u>
1.....		
2.....		
3.....		

Company:
.....

Mailing Address:.....

Telephone Telefax.....

e-mail.....

Do any of the delegates mentioned above require a 'formal letter of invitation' to assist them with an application for a Visa to enter the European Union?

Yes/No*

*Please delete **one** of these options

N.B. The Course will start at **09:00 on 12th October**, and finish at about **16:45 on the 13th October**. If you wish to stay for an additional night in the **Hotel am Stadtpark**, and travel from Hannover on the **14th October**, we can also arrange for

your stay at the hotel to include the night of **Wednesday 13th October**. To avoid any accommodation problems we ask you to specify the **nights that you want to stay at the hotel**.

Consequently it is **very important** that you also complete the hotel booking form below!

Hotel Reservations Required

Please reserve hotel accommodation at the **Hotel am Stadtpark, Clausewitzstrasse, Hannover**, as indicated below:

Name of Delegate: **Nights for which a reservation should be made**

Example:	Monday 11th October	Tuesday 12th October	Wednesday 13th October
John Smith	Yes	Yes	No
1.....			
2.....			
3.....			
4.....			

Hotel Telephone: ++49 511 2805 555 **Hotel Telefax:** ++49 511 81 46 52

Please note that Delegates to the Seminar are responsible for settling their own hotel bill when they check out.

As mentioned earlier, it is important that the Hotel am Stadtpark are informed of all situations where they are expecting a named individual to check in but where another person arrives as a '**previously unannounced**' replacement! It is therefore **very important** to the smooth operation of the hotel reservations package that you tell Annette.daubner@solvay.com about **any changes that you or your company needs to make to your reservations**. In order to avoid any problems this needs to be done **by Friday 8th October** at the latest.

In situations where a delegate fails to arrive and claim his room on his expected day of arrival, Solvay Fluor GmbH will forward the invoice that they receive from the hotel to cover the room-cost for **one** night to the delegates company for payment.

Once you have completed **both** the Seminar Booking Form, **and** the request for hotel accommodation, please fax them direct to:

EABS Secretariat at.

++44 1260 27 67 29

Thank you - and we look forward to welcoming you to Hannover in October

EABS Secretariat: May 2010
EABS-Solvay Seminar 2010 - Booking details.