

EABS: European Association for Brazing and Soldering

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

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

Dates:

5th & 6th October 2011

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 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 *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 - Wednesday 5th October 2011

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 - Thursday 6th September 2011

3. The NOCOLOK[®] Flux Brazing Process

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

An introductory overview of the process.

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

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

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)

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**)

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 Centre 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](#) sent with 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 when they check-out 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 Wednesday 5th October 2011**, and is expected to finish at about **16:45 on Thursday 6th 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 **Wednesday 5th 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 30th September.2011**, please!
- Please note that the available places on all nine 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 EABS by fax or e-mail as soon as possible, please!

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

EABS: European Association for Brazing and Soldering

Seminar Booking Form

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

Dates: **5th & 6th October 2011**

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:

First Name

Family name

1.....

2.....

3.....

4.....

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 Seminar will begin at **09:00 on 5th October**, and finish at about **16:45 on the 6th October**. If you wish to stay for an additional night in the **Hotel am Stadtpark**, and travel from Hannover on the **7th October**, we can also arrange for

your stay at the hotel to include the night of **Thursday 6th October**. To avoid any accommodation problems we ask you to specify the **nights that you want to stay at the hotel**. Consequently it is also **very important** that you complete the hotel booking form below!

Hotel Reservations Required

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

<u>Name of Delegate:</u>	<u>Nights for which a reservation should be made</u>		
Example:	Tuesday 4th October	Wednesday 5th October	Thursday 6th October
Klaus Schmidt	Yes	Yes	No
1.....			
2.....			
3.....			
4.....			

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

Please remember 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 since she is in regular contact with the hotel. In order to avoid any problems this needs to be done **by Monday 3rd October at the latest, please.**

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.

Since EABS are coordinating all details relating to the bookings, 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

or by e-mail to
eabs@btconnect.com

Please do not send these forms to Solvay Fluor GmbH. If you do, it will delay your reservations being made since Solvay Fluor GmbH will have to pass them to EABS for action.

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