



Greetings from the country of the rising sun

Japan is the strongest market in Asia for the automotive industry. It is only logical that, in terms of CAB brazing, this market is crucial for Solvay.

In 1980 Solvay started its flux production in Germany. Japan was the first country to implement the process for mass production.



So we have been present from the start. Of course, our sales/technical people at Nippon Solvay now take care of all our customers' needs.

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About the company:
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acquisition of Ausimont, confirming
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**2nd International Aluminium
Conference in Düsseldorf**
Claiming to be top presenter

NOCOLOK[®] Zn Flux –
A zinc generating compound
The alternative flux for corrosion
protection

Brazing Events

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Solvay successfully completes acquisition of Ausimont, confirming leadership in fluorinated specialties

Following approval by the European Commission and the United States Federal Trade Commission, Solvay completed its acquisition of Ausimont, the fluorinated specialties group, from Edison and Longside International.

This € 1.3 billion acquisition is the largest in the history of Solvay. The integration of Ausimont doubles the size of Solvay's activities in the fluorinated sector, while extend-

ing the group's product portfolio significantly. On the basis of 2001 figures, Solvay's fluorinated specialties generate a total annual turnover of € 860 million, with 2,700 employees.

The basic raw materials required to make fluorinated products are produced by Solvay, based on fluorspar mined in Namibia. These materials are converted into hydrogen fluoride using Solvay core technology.

Hydrogen fluoride is transformed into a wealth of valuable fluoro derivatives for broad range of applications, for automotive, pharma, semiconductors and the chemical industries.



2nd International Aluminium Conference in Düsseldorf

Claiming to be top presenter

From May 15 – 17 2002 this conference took place in Düsseldorf for the 2nd time

after 2000, again mainly focussing on NOCOLOK[®] brazing.

170 participants from 21 countries made this an international event, creating the impression that brazing specialists – more or less all from Europe – will regularly require such meetings in the future as well.

Presentations introduced new types of alloys, fluxes and brazing procedures. Discussions among experts and an exhibition of the companies supplying the after-mar-



ket additionally supported the positive outcome of the event.

The Aluminiumverlag, organizers of the conference, presented their books and documentation on brazing and welding in cooperation with DVS (German Industrial Welding Association).



The alternative flux for corrosion protection

Solvay's ongoing research efforts have resulted in the development of a new flux – NOCOLOK® Zn Flux. This product has now reached its introductory phase for commercialisation.

All heat exchanger manufacturers currently using zinc-coated tubes or zinc-coated brazing sheet and extrusions for corrosion protection are invited to consider NOCOLOK® Zn Flux as an alternative.

How does NOCOLOK® Zn Flux work?

The new flux – a fine white powder with the chemical formula $KZnF_3$ – is manufactured by Solvay Fluor similarly to standard NOCOLOK® Flux in a water-based batch process. Thus this material has a distinguished and uniquely homogeneous composition.

Coating methods for the new product include slurry-based spraying, dipping, and painting, or electrostatic spraying for aluminium surfaces where zinc diffusion layers are required.

NOCOLOK® Zn Flux is a so-called "reactive" flux, i.e. the compound becomes active only at brazing temperature when it is in contact with aluminium.

Pure $KZnF_3$ without contact to aluminium decomposes at temperatures above 700 °C. But when in contact with an aluminium substrate, this material initiates a series of reactions beginning at around 565 °C. At first, a NOCOLOK®-type flux is liberated

together with elemental zinc from the $KZnF_3$ and the aluminium surface according to the following equation:



The flux then dissolves the oxides present on the aluminium. Once the Al/Si eutectic melting point is reached at 577 °C, the filler alloy (supplied from a clad layer by one of the base components) starts to gradually liquefy until the maximum brazing temperature is reached. During this entire period the elemental zinc, which is formed by the NOCOLOK® Zn Flux, diffuses into the surface of the base component, thus creating a zinc diffusion layer – as is also known from zinc sprayed surfaces.

The coating process for NOCOLOK® Zn Flux on aluminium components can be adjusted to provide exactly the same diffusion profiles as in zinc flame spraying. Furthermore, this material allows the modification of precise zinc levels in a much more controlled manner, because the handling of a fine powder provides increased flexibility.

Latest tests confirm the good results

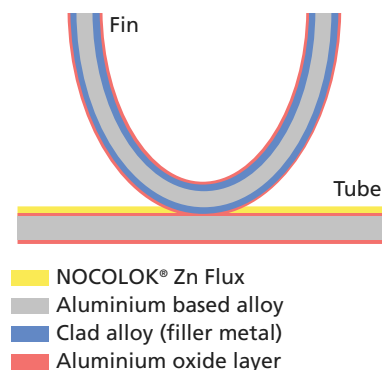
Successful brazing is feasible with a NOCOLOK® Zn Flux load of just 3 – 5 g/m² – Another step to reduce overall flux consumption – because this material provides flux and zinc at the same time.

Well defined physical and chemical product properties are essential performance factors. The melting behaviour and compatibility with appropriate coating binder systems were researched by Solvay and further developed and optimised in joint projects with our customers.

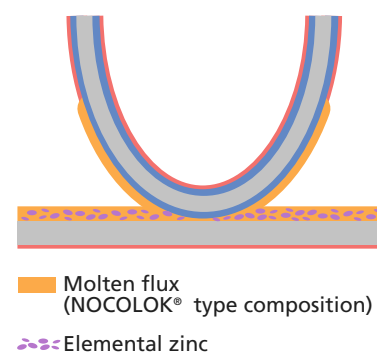
Currently, the main fields of application for NOCOLOK® Zn Flux are the production of automotive condensers and next generation evaporators. The compound therefore is used together with clad brazing sheet.

Future tests are planned to use the new product on bare aluminium sheet for cladless brazing.

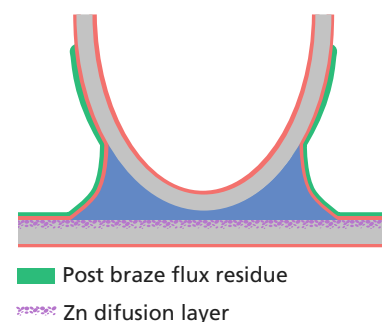
Before Brazing



During Brazing (before filler metal melting)



After Brazing



NOCOLOK® NEWS

presents information for NOCOLOK® users.

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Brazing events

- EABS brazing seminar
Hannover, Germany
September 24 – 25
- IKK Refrigeration Exhibiton
Nürnberg, Germany
October 15 – 18
- 7th Annual Aluminum Brazing Seminar,
Indianapolis, USA.
October 16 – 18