

Sharing experiences to increase acceptance of FRP

This issue of Global Solutions looks back to our anti-corrosion symposium held in Geleen, October 17 -18. One of the goals of this event was to create a platform whereby experts from the industry could exchange their experiences and know-how about FRP materials. The more we learn from each other, the more we are able to raise the awareness level of the total industry - which will benefit the whole value chain, including producers, end-users, specifiers, designers and engineers.

As well as an interesting presentation, good discussions and entertaining evening program, the agenda also took in an impressive site tour explaining the great many opportunities for FRP materials on a large chemical site.

These types of events are extremely important for sharing and communicating valuable information. We therefore intend to hold similar symposia during this year.



Group photograph of participants at the FRP Symposium

FRP Symposium proves a great success

There's no doubt that the recently held FRP symposium in Geleen, organized by the Tanks, Pipes & Relining team of DSM Composite Resins, has been a great success.

On October 17 and 18, 2006, more than 70 people from the anti-corrosion industry worldwide, attended the event to learn about the latest developments and to meet fellow

producers, partners, customers and industry specialists. It was held at the main premises of DSM in the south of the Netherlands.

On the following pages we will present more details on this, the first international symposium.

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FRP education is vital

Dear reader, I'd like to first wish you a healthy and prosperous new year: a year where I expect increased investment in the chemical industry. In most of these investments, FRP materials could and should play an important role. However, in the real world, the criteria for material selection are not always rational ones, and often decisions are based on emotions, pre-conceptions and insufficient knowledge. As an industry we need to team-up and meet our responsibilities to educate and inform, by discussing the successes and, just as important, the failures of FRP. Only then will we manage to grow the share of FRP. I therefore hope to meet you at the FRP Unlimited conference in March in Munich, Germany.

Jan Coerts
Business Manager Tanks, Pipes & Relining

Failures with FRP mean lessons to be learnt

Focusing on the success stories with FRP is essential to highlight the possibilities the material offers, but unfortunately not everybody has only positive experiences. Failure cases are equally important to present a realistic and balanced picture to the world. This was emphasised in the presentations of Hans Bos (Dynaflow) and Wim Dijkstra (NAM). Both speakers showed, through many examples that, beside specifying the right material (UP, VE or epoxy), other factors like system design are also decisive in determining the rate of success or the risk of failure.

Failure cases with FRP not only harm the image of the contractor/producer involved in that specific project, but they also undermine confidence in the total industry. So therefore it is crucial to increase the success rate in the industry to minimize the risk of failures. By sharing and learning from the lessons of the past we can improve the successes of the future.

Reliable use of FRP in critical applications

The contributions of Carlos Mueller (BASF Chile) and Peter Bogers (Verstedden Leidingsystemen) were on a more positive note. Both showed that in the pulp & paper industry, as well as in the chlorine industry, the use of vinyl ester piping and tanks is well established. FRP has proven to be a reliable solution in critical applications, especially by offering additional services like regular inspections and monitoring systems to identify the rate of corrosion related to the expected service life of the equipment.

Finally, Bernard Rijkema of AKZO Nobel Chemicals showed the extreme chemical resistance performance of PTFE lined Daron vinyl ester urethane hybrid systems - which have been selected over alternative materials like glass lined steel.



Overview of the audience during presentation at the FRP Symposium

Corrosion in FRP, what is the right approach for success?

On the first day of the FRP symposium, two presentations concentrated on addressing this question. What is the philosophy as regards FRP materials and corrosion? Is there an approach, as with metals, or do we believe that FRP materials - which in many cases replace steel equipment - do not suffer from corrosion? If so, then we are really making a big mistake.

FRP CORRODES

In the presentation of Gunnar Bergman of

KIMAB (former Swedish Corrosion Institute), it was clearly shown how important it can be to measure what is going on in FRP equipment that is exposed to aggressive chemical environments.

Depending on the environment, FRP materials also suffer from corrosion, and in many cases there are a lot of similarities with metal corrosion mechanisms such as uniform corrosion, selective corrosion, stress corrosion, corrosion fatigue, erosion corrosion and layer corrosion.

ATLAC AND ALKALINES

In the presentation by Kees den Besten from the Tanks & Pipes Expertise Centre, some examples were shown of results from the alkaline study. Here again, the importance of being able to determine corrosion rates was underlined. As long as the structural laminate is not affected by the environment inside the tank or pipe, the service life is guaranteed. However, do we know how long this period is? This is where predictive analysis can be a very important tool.



Opening by Jan Lodewijk Lindemulder

Organising the Symposium

Looking back on the FRP symposium, the business management of DSM Composite Resins is extremely happy with the result.

"After three years as Business Manager Tanks, Pipes and Relining, it was definitely the time to take that extra step", says Jan-Lodewijk Lindemulder. "In early 2006 we took the decision to begin organizing the symposium, because it was very clear to me that there is a need for

these types of events. Although we have a lot of contacts in the industry, the best way to communicate and to share experiences and know-how with each other is by bringing all parties together: customers, engineers and end-users."

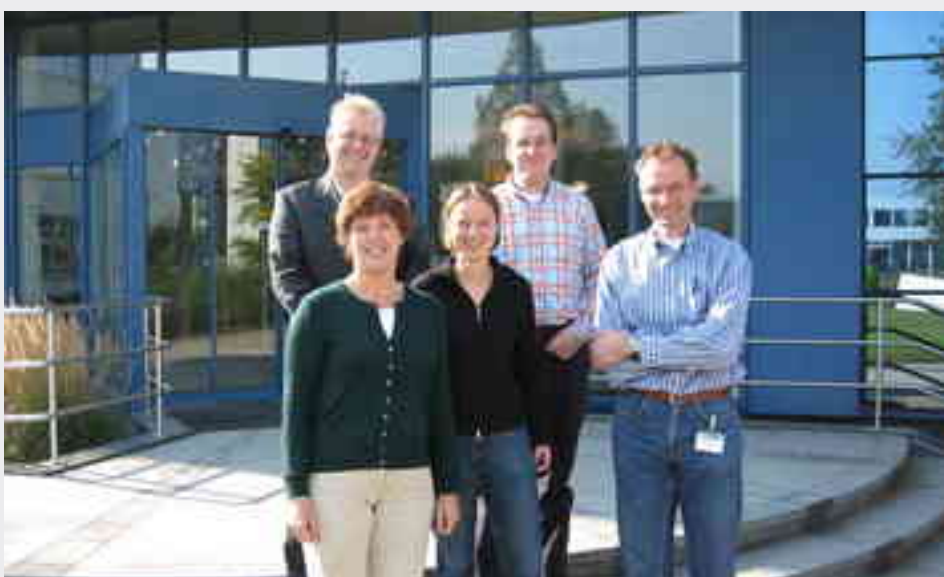
BRINGING PEOPLE TOGETHER

"First of all we had to contact potential speakers, preferably from different disciplines in the industry

to make the program as attractive and rewarding as possible for all who attended. The next challenge was to find a suitable venue and here we were helped by DSM Corporate Events. Invitations were sent out by the end of May, but as the summer holidays intervened, the number of registrations was very low up until early September - making the organizing team, myself included, a little nervous!"

LET'S GROW THE ACCEPTANCE OF FRP

Meanwhile, the Business Manager position had been taken over by Jan Coerts. "At that time it was a really challenging activity to take over the organisation of the Symposium," says Jan Coerts. "However, after the slow start, the registrations soon came in every day and finally we even had to disappoint several people because we were fully booked. I really believe that this event has helped us to appreciate and understand how we all can contribute to the success of FRP materials. When FRP materials are successfully applied, we all benefit. So, it's not a matter of competing with each other but of growing the acceptance of FRP."



Organising team, left to right: Jeroen van Bussel, Renee Molendijk, Sandra KleinNagelvoort, Jan Coerts and Kees den Besten

Huge projects in Atlac vinyl esters

The FRP anti corrosion symposium provided the ideal stage to present the great opportunities offered by Atlac vinyl ester resins. Several interesting projects were highlighted to illustrate different applications.

Firstly details of two flue gas projects at power plants in Germany and Holland were shown by Prof. Dr. Nonhoff (case of Christen & Laudon) and Mr. Marc Gofflot (ACS) respectively. In both presentations it was impressive to see the vast filament wound chimney parts, up to eight metres in diameter, based on Atlac 430 vinyl ester.

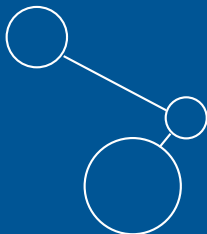
Secondly, Mr. Wil Moeling of DM Tanksystems explained the principle of FRP based floating

roofs for storage of crude oil. Here, immense vinyl ester structures are produced up to 50 metres in diameter to prevent evaporation of volatile organic components. The construction shown is a unique combination of a light weight sandwich core material and Atlac E-Nova vinyl ester - which was selected due to its good chemical resistance and easy processing properties.

Finally, Mr. Han van Gorp of EdeA showed the group what is happening at the Chemelot site in Geleen as regards the new fire fighting pipeline. This huge and very complex project is currently being successfully undertaken using Atlac E-Nova based filament wound pipes to replace the existing fire line.



FRP piping



Jan Coerts
Business Manager Tanks,
Pipes & Relining

Jan Coerts, 31, started at DSM in 1999 after graduating in Business Administration at Groningen University. After working for four years in Supply Chain Management, Jan moved for three years to the United States as a Sales Manager for Powder Coating Resins. Today, Jan's responsibility is to control and develop the market segments Tanks, Pipes and Relining. Personal life revolves around wife Odile and one-year-old daughter Jolijn. His leisure activities include tennis and golf.

Unlimited FRP

'Experiences and developments with Fibre Reinforced Plastics in industrial applications'. This is the title of a forthcoming event that is being organized by TUEV SUED Akademie GmbH in Munich, Germany. It will be the 5th FRP conference and will be dedicated to experiences with FRP components. Well-established companies and industry experts will report on material properties, specific types of design and fields of applications. The venue will be Fuerstenfeldbruck near Munich, Germany - March 7 and 8, 2007.

The conference addresses the needs and concerns of manufactures of plastic vessels, equipment and pipelines; companies installing plant made from plastics; operators of plants with FRP components; plant designers and constructors; and consulting firms and authorities. DSM is one of the sponsors of this event so if you would like to attend or to receive more information, you can contact the Expertise Centre Tanks, Pipes and Relining. You can also

directly register by contacting TUEV - email: elisabeth.reimers@tuev-sued.de.

DSM Composite Resins at JEC 2007

In April 2007, DSM Composite Resins will again be participating at the JEC Composites Show. This year the show will take place from April 3-5 at Porte Versailles in Paris. The overall JEC theme is INNOVATION.

The anti-corrosion team is happy to welcome you to Paris where we are proud to share with you our latest developments in the anti-corrosion industry. We look forward to meeting you on our booth so please don't hesitate to drop by. Meantime if you would like to receive more information, please contact Kristel van Haaren (kristel.haaren-van@dsm.com).

EVENTS

FRP UNLIMITED	March 7-8, 2007; Fuerstenfeldbruck, Ger	elisabeth.reimers@tuev-sued.de
3RD WOOD FIBRE POLYMER COMP. SYMP.	26 Mar 2007 / 27 Mar 2007 - France	woodpolymer@ctba.fr
3RD COBRAE CONFERENCE	29-30 March 2007, Stuttgart, Germany	www.cobrae.org
JEC COMPOSITES SHOW 2007	3-5 April 2007, Paris, France	www.jeccomposites.com
COMPOSITES AUSTRALIA	19-20 April 2007, Gold Coast, Australia	ann@compositesaustralia.com.au

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