NVVT ATIPIC Bond voor Materialenkennis

NVVT / ATIPIC STUDY - DAY

New Binder Technology

MARCH 15th, 2011

Welcome	**09h00**
Start of sessions	**10h00**
End of sessions	**17h00**

E 10 HOEVE BRECHT

BELGIUM

Programme

09h00 **Welcome**

09h15 **Registration and coffe/tea**

10h00 **Formation of TiO2-Polymer Composites in Waterborne Dispersion Paints**
Dr. Andrew Trapani, Dow Coating Materials

The hiding of conventionally formulated waterborne dispersion paints depends on a complex set of factors including the level of TiO2, the type and levels of extenders, and the colloidal interactions of the polymer and pigment particles with other paint additives. Replacing the conventional TiO2 with recently developed TiO2-dispersion polymer composites has been found to be effective at enhancing the scattering efficiency of TiO2 in waterborne coatings. TiO2 use levels in these systems can be reduced by 20% or more while maintaining the opacity and tinting strength of the final coating. The mineral-polymer composite material is created under usual paint-making conditions using a dispersion polymer pre-composite and standard paint grades of titanium dioxide. The dispersion polymer pre-composite usually replaces about half of the binder content in the paint formulation. Surprisingly, the wet hiding performance of the TiO2-polymer composites is enhanced relative to conventional TiO2 in liquid paint formulations thereby providing nearly equal wet hiding performance with reduced TiO2 content in the paint can. Therefore, TiO2-polymer composites minimize the negative impacts of conventionally formulated TiO2, yielding a much more uniform distribution of TiO2 in both the dry and wet paint films, thus delivering higher scattering power at reduced cost.

10h40 **New waterborne radiation curing technology for industrial wood coatings**
Adriaan Sanderse, Nuplex Resins BV

A new UV-curing waterborne binder has been developed for use in industrial woodcoatings. The binder has an acrylic backbone and possesses a dual-crosslinking system where UV-functionality is combined with self-crosslinking potential. In this paper the chemistry behind this binder systems is discussed and it is demonstrated how high performance clear and pigmented coating systems can be formulated.

11h20 **2K Clear Coats Based On Silane And Urethane Technology**
André Raukamp, Evonik Degussa GmbH

In today´s coatings industry, 2K polyurethane (PUR) coatings set the benchmark for high performance, outstanding mechanical properties and appearance combined with excellent weatherability and environmental etch resistance. This presentation should show possibilities how to impart a superior scratch resistance in 2K PUR coatings by combining silane- with urethane chemistry.

12h00 **Lunch**

14h00 **Lowering the carbon footprint of a resin by using only BioBased Building Blocks (4B)**
Dr. Ad Hofland, DSM Coating Resins

The ultimate resin for a low carbon footprint is of an alkyd resin with a low content of fossile carbon but also a low energy content. This reflects the definition of CFP as being the amount of fossile carbon to be turned into carbon dioxide per unit of human satisfaction. Unfortuately a resin producer can only control the resin until it leaves the factory gate, but we can make sure that it contains as little as possible fossile carbon at that stage. That means that we have to revert to raw materials from bioresources which contain as little as possible energy. Examples are succinic acid, colophonium, glycerol and isosorbide.

Fortunately the presence of fatty acids in amounts up to 70 % already gives the alkyd chemist a head start over any other resin developer. Whether the resin will be supplied afterwards as high solids or as a waterbased alkyd does not have a huge impact on the carbon footprint. The CFP of nafta based solvents is surprisingly low when compared to for instance the very “bio-sounding” adipic acid. And even these solvents can be replaced by biobased ones like ethanol, the methyl ester of soybean fatty acids and methyl lactate. However it can be expected that the choice between waterbased and high solids will to a large extent be guided by rules, regulations and company policies rather than by (eco) performance.

Good reading matter for the potential user of BioBased Building Blocks (B4 approach) can be found in Monomers, Polymers and Composites from Renewable Resources, ed. Alessandro Gandini, Elsevier 2008, ISBN 978-0-08-045316-3 and an elaborate report from the Department of Energy of the US, electronically available @ http://www.osti.gov/bridge/product.biblio.jsp?query_id=1&page=0&osti_id=926125&Row=0.

14h40 **UV technology: from industrial to on-site applicationl**
Dr. Arno Nennemann, Bayer

Waterborne UV-curing dispersions are established on the coatings market since the nineties. Especially in wood coating applications, waterborne UV technology was able to substitute solventborne 2K-systems. Besides the desired coating quality yielding surfaces with excellent optical appearance and required resistances, the technology covers all relevant features: it is highly productive as well as environmental friendly. Based on these advantages, more and more new applications are being made accessible, even beyond the established industrial applications. A special focus of this presentation will be on-site application of UV-technology.

15h20 **Coffee/tea break**

15h40 **UV-Technologie und ihre Anwendungen**
Michael Stengle, IST

Vortragsinhalte:
- Vorteile der UV-Technologie
- Einsatz in den verschiedenen Druck- und Beschichtungsverfahren
- Einsatz kationischer und radikalischer Farbsysteme
- Zur Verfügung stehende Lichtquellen (verschiedene Lampendotierungen, LED-Technologie)
- Abstimmung der Lampenspektren mit Photoinitiatoren und Pigmenten
- Einfluss veränderlicher Parameter auf Härtungsergebnis (Leistung, Geschwindigkeit, Dotierung, Reflektorgeometrie, Reflektorbeschichtung ...)
- Nutzungsmöglichkeiten der IST-Laboreinrichtungen

16h20 **Informatie over deze lezing volgt. Zie website: www.materialenkennis.nl**
Cray Valley

17h00 **Final discussion and after meeting drink**

REGISTRATION FEES

	Dutch companies	Belgian companies	No VAT registration number
NVVT/ATIPIC members	€ 100,00 (including 19% VAT)	€ 84,03 (VAT reverse charged)	€ 100,00 (including 19% VAT)
Non members	€ 140,00 (including 19% VAT)	€ 117,65 (VAT reverse charged)	€ 140,00 (including 19% VAT)
Retired and students			€ 50,00 (including 19% VAT)
Speakers			free

The cash payment has to be done at the entrance of the conference room. For practical reasons neither cheques nor credit cards will be accepted.

REGISTRATION AND CANCELLING
Registrations are to be made at the latest by March 12th by mail to info@materialenkennis.nl, by fax to number: +31 040 296 99 26. To cancel your registration please contact Bond voor Materialenkennis.

LOCATION
E 10 Hoeve, Kapelstraat 8a, B 2960, BRECHT

From Antwerp to Breda
Motorway E19 Antwerpen-Breda exit 3 Brecht, direction village, at the traffic lights turn to the right in direction of Merksem and after about 1,5 km turn right again and you'll see the E 10 Hoeve on the left side.

From Breda to Antwerp
Motorway E19 Breda-Antwerp exit 4 Sint Job-in 't-Goor. After exit, go left direction Wuustwezel-Essen. After 1,5 km turn to the right. Follow this route for about 5 km. After crossing the highway you'll see the E 10 Hoeve at your right side.

NEXT NVVT MEETINGS

24 may 2011	Additives
13 september 2011	UV
15 november 2011	Past and future of the paint

The NVVT-management is looking forward to meet you on the 15th of March 2011!

Dr. P.J.A. Geurink, president
Dr. J.J.M. Lamberts, vice-president
Drs. R. Leijen, cashier
Dr. B.P. Alblas, secretary
Drs. Ing. A. van der Horst
M. la Faille
Ing. A.P. Verbree
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