ATIPIC/NVVT

SCIENTIFIC & TECHNICAL SYMPOSIUM 2023

THEME: *NOVELTIES FOR THE PAINT INDUSTRY*

BOTH BOARDS OF ATIPIC & NVVT INVITE YOU TO ATTEND THEIR ANNUAL SYMPOSIUM

DATE: **22 MARCH 2023**
TIME: **9:30 HRS. – 17:00 HRS.**
VENUE: **PRIORIJ CORSENDONK**
CORSENDONK 5, 2360 OUD-TURNHOUT
PHONE : 014 46 28 00
HTTPS://CORSENDONKHOTELS.COM/LOCATION/PRIORIJ-CORSENDONK/

Time	PROGRAM / Titles	Speakers
09:30 hrs.	Welcome / Registration (coffee/tea)	
09:55 hrs.	Opening morning session by Dr. Jacques Warnon, president ATIPIC	
10:00 hrs.	Moisture curing, Isocyanate-free protective Topcoats	*Nathalie Havaux (Hexion)*
10:35 hrs.	Tin free Catalysts for Polyurethane Systems	*Bjørn Hofman (King Industries)*
11:10 hrs.	Coffee Break & time for net-working	
11:25 hrs.	Selection and Performance of Bio-based Components for Epoxy Coatings	*Dr. Pieter Samyn (Sirris)*
12:00 hrs.	Bio-based Energy-Curable Polymers meet recycled Raw Materials	*Dr. Michel Tielemans (Allnex)*
12:35 hrs.	Lunch break	
13:45 hrs.	Opening afternoon session by Dr André van Linden, president NVVT	
13:50 hrs.	The Use of solid Colourants for solvent-borne Paint Production	*Martin Moore (Holland Colours)*
14:25 hrs.	A Step Change in the Environmental Impact of Wood Stains	*Dr. Gerard van Ewijk (Akzo Nobel)*
15:00 hrs.	Coffee Break & time for net-working	
15:15 hrs.	Will Paint fall under Eco-Design Legislation in a few Years' Time	*Jeroen Hagman (VVVF)*
15:50 hrs.	Emulsifying ionic Polymer in Water; How does that actually Work?	*Dr. Bart Reuvers (Covestro)*
16:40 hrs.	Closure	

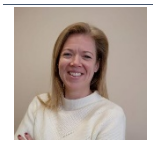
ATIPIC/NVVT

SCIENTIFIC & TECHNICAL SYMPOSIUM 2023

NOVELTIES FOR THE PAINT INDUSTRY

ABSTRACTS

10:00 hrs. **Moisture curing, Isocyanate-free protective Topcoats** ***Nathalie Havaux (Hexion)***



Silane moisture curing coatings are based on a two-step chemistry. In the first step, silane functionalized polymers react with moisture from the ambient air to yield silanols. In the second step, silanol groups condensate to form siloxane cross-links. This technology is increasingly used for high performance marine and protective applications. This paper discusses a new family of polymers based on the combination of vinyl (neo)esters and vinyl or acrylic alkoxysilane monomers where the silane monomers provide a fast and efficient curing of the coatings whereas the highly hydrophobic vinyl esters ensure a high stability of the systems in the can and an excellent durability to the coatings. Tests of these new binders in 1K coatings demonstrate that high solids, fast drying and long shelf life can be combined in a cost-efficient isocyanate-free solution. These binders are a valuable alternative to 2K polyurethanes and acrylic-polysiloxanes for many applications, especially in protective coatings.

10:35 hrs. **Tin free Catalysts for Polyurethane Systems** ***Bjorn Hofman (King Industries)***

K-KAT Catalysts are metal compounds designed for accelerating the crosslinking reaction of isocyanates with polyols. In addition to replacing tin catalysts, K-KAT catalysts offer a wide range of performance advantages. Benefits include an improved pot life/cure time relationship, less gassing in the presence of water (humidity), improved cold temperature cure response and catalysis of secondary hydroxyl groups, and excellent film properties.

11:25 hrs. **Selection and Performance of Bio-based Components for Epoxy Coatings** ***Dr. Pieter Samyn (Sirris)***

The incorporation of biorenewable resources in protective coatings is required to make a stepwise transition from fossil-based towards bio-based coatings. In this study, various alternatives to increase the biobased content in epoxy coatings are evaluated through selection of appropriate epoxy resin, diluent, crosslinker types or additives. The curing mechanisms and kinetics of epoxy resin with four phenalkamine (PK) and fossil amine (FA) crosslinkers are compared by means of differential scanning calorimetry, illustrating faster curing and higher conversion of PK compared to FA. Second, a systematic study for various concentrations of PK and ratios of PK/FA crosslinkers relatively to the epoxy resin indicates good mixing compatibility resulting in higher hardness, higher hydrophobicity and better abrasive wear resistance of the coatings with PK crosslinker. The superior performance is confirmed over a broader range of resin/crosslinker ratio and facilitates the processing with viscosity profiles depending on the PK type. After testing different mixing ratios between fossil-based and bio-based crosslinkers, the progressive increment in bio-based crosslinker content shows linear improvement in mechanical properties indicating good compatibility. Moreover, the incorporation of bio-based diluent allows to further tune the required mechanical properties of the coating. Also the introduction of nanocellulose additives in waterborne epoxy emulsion coatings has high potential to create mechanical resistant coatings with small concentrations of bio-based additives and high crosslinking density. The overview of results may be promising for industrial application of bio-based epoxy in industrial protective coatings on wood (e.g. flooring), where superior performance is illustrated after the optimization of processing conditions.

12:00 hrs. **Bio-based Energy-Curable Polymers meet recycled Raw Materials** ***Dr. Michel Tielemans (Allnex)***

Allnex sustainable core technologies articulate product ranges around five major sustainability pillars. Renewable raw materials along the value chain are presented as a unique opportunity for circularity and material carbon footprint reduction (ASTM D6866). Since there is no bio-based equivalent for every existing fossil raw material, a transitional biomass balance concept can provide a certified sustainability benefit coming from bio-carbon allocation. Alternatively, recycled raw materials can also bring a sustainable contribution to product development. Supported by the principles of green chemistry, a unified proposition for material carbon footprint reduction is proposed with the use of "better carbon" considering the required data alignment within the product Life Cycle Assessment. We illustrate how these concepts can jointly drive our developments with the presentation of two novel radiation-curable products (water-based and 100%). These products fulfill today's market demand for high performance coatings and place ecology as a center point of innovation

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SCIENTIFIC & TECHNICAL SYMPOSIUM 2023

NOVELTIES FOR THE PAINT INDUSTRY

ABSTRACTS (next)

13:50 hrs. **The Use of solid Colourants for Solvent-borne Paint Production** — ***Martin Moore (Holland Colours)***

The pressure for simplification in the manufacturing and distribution process is an ongoing trend in the industrial coatings market, this is driven by factors such as cost efficiency, consistent quality and increasingly, environmental considerations. Over the last few decades factory production has increasingly focused on white and transparent base, with the final colour being tinted in-can. This flexibility has greatly reduced the overall cost and complexity of the distribution of products into the market, and at the same time enabled paint companies to adapt to the rapidly changing demands of the modern market. Of course, this is an ongoing process and companies are continuously looking for further improvements, without sacrificing product quality. This talk will cover a new method of introducing TiO2 into the batch production process, as a dispersible solid colourant, and the practical improvements in processing time, handling, cleaning and product quality observed under real conditions.

14:25 hrs. **A step Change in the Environmental Impact of Wood Stains** — ***Gerard van Ewijk (Akzo Nobel)***

The share of waterborne technology in architectural wood coatings is steadily growing, yet there are markets where solventborne products are still the preferred choice. Through water-in-oil (WiO) technology, we can offer significantly more sustainable products in these markets. After years of pushing the boundaries of water-in-oil technology, we are now at a stage where water-in-oil woodstains have up to 50% lower VOC content compared to conventional woodstains. In this presentation I will highlight the latest state of affairs with water-in-oil woodstains in AkzoNobel. Scientific and practical insights will be given as to where the limits of WiO technology are, and the challenges in dealing with water-in-oil technology on an industrial scale will be briefly addressed. Finally the sustainability benefits of WiO woodstains will be quantified, showing that WiO woodstains can have a substantial carbon footprint reduction compared to conventional woodstains.

15:15 hrs. **Will paint fall under Eco-design Legislation in a few Years' Time** — ***Jeroen Hagman (VVVF)***

European Ecodesign legislation, known for the energy labels for lamps and refrigerators, is being revised. Almost all products can fall under the newly named 'Eco-design for Sustainable Product Regulation' (ESPR). Paint is on the shortlist to be included in the first tranche of product groups. Which paints are in scope and what requirements can be set for paint formulations? Jeroen Hagman of the VVVF will give an update on recent developments.

15:50 hrs. **Emulsifying Ionic Polymer in Water; How does that actually work?** — ***Dr. Bart Reuvers (Covestro)***

Covestro (former DSM Resins) produces synthetic resins (polymers) for coatings and adhesives. For usage in water-borne coatings, these viscous, tough resins are emulsified in water, at the presence of an interfacial active component (emulsifier or surfactant): While stirring, the water-immiscible resin distributes in water as microscopic small droplets (domains). Accordingly, a stable, milky liquid (emulsion) is obtained with a relatively low viscosity facilitating ease of processing. In the context of emulsification, water-immiscible liquids as our resins are all referred to as 'oils'. During this lecture we consider the generic process of formation of 'oil' domains in water, both from hydrodynamic and thermodynamic perspective. In particular we will regard the size of the oil domains obtained, as influenced by mechanical agitation as well as by the chemical structure of the emulsifier. For low-viscous oils, two distinct different mechanism's for droplet formation have been validated and described in literature: For certain oils, the droplet size achieved appears to be largely determined by 'hydrodynamics', in particular the rate of stirring. For other oils, the oil domains appear to form spontaneously. The size of these domains is unaffected by the rate of stirring and largely determined by the chemical structure of the emulsifier. In the first part of the lecture, these two mechanisms of droplet formation will be described in more detail, emphasizing the condition decisive for the type of mechanism to occur. In the second part, we address the following questions: Which of both mechanisms occurs on emulsifying our high-viscous synthetic resins? Or can we identify a basically different mechanism of droplet formation?

ATIPIC/NVVT

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REGISTRATION

REGISTRATION FEES (Lunch included)

ATIPIC/AFTPVA/NVVT member:	**90,00 EUR (VAT included)**
Retired ATIPIC/AFTPVA/NVVT member:	**40,00 EUR (VAT included)**
Non ATIPIC/AFTPVA/NVVT member :	**180,00 EUR (VAT included)**
Retired non ATIPIC/AFTPVA/NVVT member:	**80,00 EUR (VAT included)**
Student:	**Free**
Speaker:	**Free**

REGISTRATION & CANCELLING

Registrations are to be made at the latest by March 15 , 2023 and exclusively with the link below:

Registration form

The payment has to be made preferable by transfer on the ATIPIC banking account number BE22 2710 6182 9347 before March 15 2023 or by cash at the registration desk at the entrée.
Please mention your first name and last name as communication on your bank transfer.

To cancel your registration please contact by mail info@atipic.be at the latest by March 18th 2023.

Any cancelling after this date (March 18th 2023) will induce the sending of an invoice for the mentioned amount on the fill-in registration form.

ATIPIC Sponsors

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Coming up events ATIPIC in in 2023

May 10: Visit enterprise Agfa-Labs
October 14/15: Atipic Relax Special WE (80 years existence of ATIPIC)
October 12: Study afternoon ATIPIC/BPG
November 30: Technical one day symposium with AFTPVA Nord

ATIPIC Management

Jacques Warnon, President
Romain Haegeman, Secretary
Eric Mol, Vice-president
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Philippe Janssens, Treasurer
Simon Kervyn
Jacky Duchenne
Nick Dewingaerden
Jennifer Demeuldre, Secretariat ATIPIC

Coming up events NVVT in in 2023

May 23: ALV and ECS Highlights
September 19: New Developments & Insides
November 21: Binders

NVVT Management

André van Linden, Chairman
Wil van Meer, Secretary
Dirk Klomp, Treasurer
Martin Bloem
Michel la Faille
Anil Laurent
Sander van Loon
Amyke Veurink

Both ATIPIC and NVVT managements are looking forward to meet you on **Wednesday March 22nd 2023.**

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