



**ATIPIC and BPG co-organize a workshop on the interface of
their respective activities**

“ Where Polymers Meet Coatings ”

October 8th, 2020 at Brabantia, Leuven

Program

13:30 - Welcome – Coffee/Tea

14:00 - Session opening by Dr. Jacques Warnon – President ATIPIC

Session 1: Chairman Professor Jean-François Gohy.

14:05 - **" Supramolecular polymer networks and gels "**

Prof. Charles-André Fustin - *UCLouvain*

14:40 - **" New approaches for intrinsic self-healing polyurethanes and related
composites under mild conditions "**

Prof. Jean-Marie Raquez – *Umons*

15:15 - Coffee/Tea break

Session 2: Chairman Dr. Jacques Warnon – President ATIPIC

15:30 - **" MS Polymer™ - Innovative polymers for bonding & coating of
hybrid materials".**

Nick Dewingaerden – *Kaneka*

16:05 - **" Design of new resins from renewable resources for the control of
advanced properties".**

Dr. Leïla Bonnaud - *Materia Nova*

16:40 - **" Water permeation in coatings", (title to be confirmed)**

Professors H. Terryn and G. Van Assche , E. Jalilian - *VUBrussels*

17:15 - Closure and after drink

Abstracts

– **" Supramolecular polymer networks and gels "**

Prof. Charles-André Fustin - *UCLouvain*

Bio and Soft Matter Division (BSMA), Institute of Condensed Matter and Nanosciences (IMCN), Université catholique de Louvain, B-1348 Louvain-la-Neuve, Belgium

The rising demand for high performance polymer networks and gels drives research towards new approaches that allows the combination of different, and even sometimes antagonistic, properties or the emergence of synergetic behaviours. Several strategies have thus been developed to try to solve this challenge, such as double or dual networks that combine different interaction types to exhibit multiple dynamics, or slide-ring materials that are characterized by movable crosslinking points. In this presentation, several examples of such materials developed in our group will be discussed.

– **" New approaches for intrinsic self-healing polyurethanes and related composites under mild conditions "**

Prof. Jean-Marie Raquez – *UMons*

Fascinating and challenging, the development of repairable materials with long-lasting, sustainable and high-performance properties is a key-parameter to provide new advanced materials. To date, the concept of self-healing includes capsule-based healing systems, vascular healing systems, and intrinsic healing systems. Polyurethanes have emerged as a promising class of polymeric materials in this context due to their ease of synthesis and their outstanding properties. This review thereby focuses on the current research and developments in intrinsic self-healing polyurethanes and related composites. The chronological development of such advanced materials as well as the different strategies employed to confer living-like healing properties are discussed. Particular attention will be paid on chemical reactions utilized for self-healing purposes developed at UMONS.

– **" MS Polymer™ - Innovative polymers for bonding & coating of hybrid materials".**

Nick Dewingaerden – *Kaneka Belgium NV*

Through the years Kaneka has developed several types of silane terminated polyethers (known to the market as Kaneka MS Polymer™). A special and exclusive group within this polymer range are the acryl modified MS Polymer™, a blend of silyl modified polyacrylates and silane terminated polyethers.

The combination of polymers with a different chain composition and structure allows strict control on morphology, compatibility and even glass transition temperature (T_g). It results in polymers with unique properties like adhesion to plastics and dissimilar materials, combined with a high-strength level adhesion. The latest developments in low viscosity polymers and unique emulsion technologies would open up further opportunities within the coating segment.

A range of specific case studies will be presented (e.g. LAM - Liquid Applied Membrane coatings, Low viscous types for coatings, emulsion technology). The continuous development of these new polymer grades shows that Kaneka MS Polymer™ remains a key technology for the future and provides solutions for changing applications.

- **" Design of new resins from renewable resources for the control of advanced properties".**

Dr. Leïla Bonnaud – *Materia Nova*

Developments of new organic materials for coating applications are mostly driven by the search for multifunctionality, improved performances and the pressure from environmental pollution concerns and possible crude oil shortage. In this context, more and more attention is paid to the conversion of renewable biomass into useful polymeric materials. Among promising candidates, bio-based benzoxazine resins could become key-players due to their outstanding performances such as near-zero shrinkage upon curing, high stiffness, excellent thermal stability, lower moisture absorption, better resistance to flammability and to UV radiation. This presentation will introduce the material and its potential for coating applications.

- **" Water permeation in coatings", (to be confirmed)**

Professors H. Terryn and G. Van Assche , E. Jalilian – VU Brussels

The objective of this work is to develop and evaluate experimental approaches with different analytical techniques to measure the permeability, diffusivity, and solubility of water in model coatings. These properties are of primary relevance in studies of coatings for corrosion protection. For water permeation measurements, setups were designed and prepared to facilitate measurements by microcalorimetry, gravimetry, and thermogravimetric analysis. For sorption measurements, films were prepared in various thicknesses to allow a proper analysis with Fourier-transform infrared spectroscopy in transmission mode and gravimetry. Both methods are successful in following water uptake kinetic curves, being complementary in film thickness ranges that can be analyzed. The validity of the permeabilities calculated from permeation measurements is compared to results from group contribution methods and reported values in the literature. Diffusivities were determined using data from the transient region in sorption and permeation measurements, as well as from the steady-state permeation rate and equilibrium solubility in permeation and sorption measurements, respectively.

Registration fees

ATIPIIC/BPG member:	FREE
AFTPVA/NVVT member:	25,00 EUR (VAT incl.)
Non ATIPIIC/BPG/AFTPVA/NVVT member:	50,00 EUR (VAT incl.)
Student:	FREE
Speaker:	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 & Cancellation

Registrations are to be made at the latest **by September 20th, 2020** and exclusively by completing the registration form on the ATIPIIC website www.atipic.be

To cancel your registration please contact ATIPIIC secretariat by mail info@atipic.be at the latest by September 28th 2020.

Any canceling after this date will induce the sending of an invoice for the mentioned amount on the fill-in registration form.

ATIPIIC and BPG managements are looking forward to meeting you on October 8th, 2020.

Next ATIPIIC events in 2020

October 3^d, 2020: ATIPIIC Relax (for members only)

November 18th, 2020 : ATIPIIC / AFTPVA Technical day

ATIPIIC Management

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About ATIPIIC and BPG

ATIPIIC (The Belgian Association of Technicians from the Paint and Allied Industries)

Objectives :

To promote the spirit and scientific methodology in all these allied industries.

To develop contacts and exchange of ideas, experience and knowledge among its members.

To contribute to the continuous learning and training of its members.

BPG (Belgian Polymer Group)

Objectives:

To provide a forum for the exchange of information on the newest trends in polymer science and technology.

To stimulate fundamental research activities and co-operations between industry and university.

To give junior scientists (graduate students, Ph.D. students, Postdocs) opportunities to establish contacts with other universities and with the industry to build up experience in the presentation of their works.



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