



PolyUrethane Recycling Towards
a Smart Circular Economy

Virtual Workshop

Chemical recycling and plastics

Dr. Bart Haelterman – Project Coordinator

Online, May 31 2021



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Online Meeting Etiquette



Please Keep
Your Mic Muted



Have
Headphones
Ready



Keep Chat
Pertinent &
Clean



Be Ready &
Be On Time



Be Kind,
Courteous,
& Flexible

- Conference will be recorded – **AVAILABLE ON THE WEBSITE**
- Presentations
- List of participants

Virtual Workshop - Chemical recycling and plastics

May 31, 2021

9:30 – 10:10

Context

Prof. Kim Ragaert, Ghent University
The state of plastics recycling in Europe

10:10 – 10:50

Sorting technologies

Katharina Ander, Redwave
Sorting Technology in Plastics Recycling

10:50 – 11:10

Break

11:10 – 11:40

Other plastics: PC

Dr Erik Sluyts, Covestro
Chemical recycling technologies for PC

11:40 – 12:10

Other plastics: PET

Inge Baele, Resilux
The power of PET in a circular economy

12:10 – 13:30

Lunch Break

13:30 – 14:10

Europur

Secretary General Michel Baumgartner, Europur
Flexible PU Foam Recycling - An overview of ongoing initiatives

14:10 – 14:40

PUReSmart – the importance for the industry

Jan Willems Recticel and Karin Clauberg, Covestro
PUReSmart – The importance for the industry

14:40 – 15:10

PUReSmart project results

Prof. Dirk De Vos, KU Leuven
Chemical recycling technologies for PU

15:10 – 15:30

Concluding remarks

Dr. Bart Haelterman, Recticel
Conclusion

Bart Haelterman, Recticel

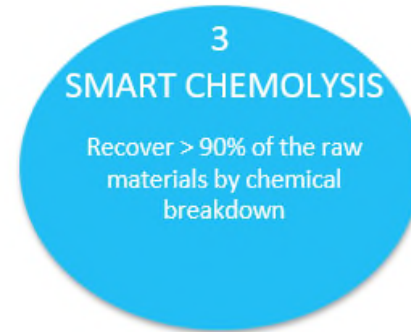
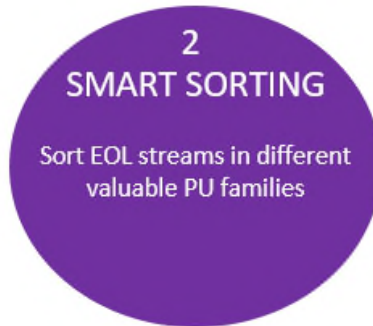
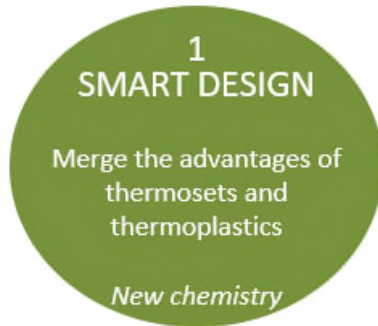
Dr. Bart Haelterman (Innovation Manager and Corporate HS&E Manager) graduated in Chemical Science in 1992 and obtained a PhD in Chemical Science at the University of Leuven in 1996. He worked for INEOS as an R&D responsible from 1996 till 2001 and subsequently was in charge of 3 batch and continuous world scale production units from 2001 till 2006. He joined Recticel in 2006 as R&D manager in automotive chemical and technological R&D and he managed supplier quality procedures for automotive, corporate R&D in the field of compounds for CASE and future low lambda insulation concepts. In 2013, he got the position of R&D portfolio manager responsible for definition of projects in the fields of insulation, bedding, flexible foams and sustainability. Since 2016, he was appointed as Innovation Manager Corporate Sustainability and additionally Corporate HS&E manager since 2017. He is PRINCE2® Foundation certified project manager, fellow of the Chemistry department of the KU Leuven and active in several industrial and sectorial organisations.



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H2020 project

- Recticel = Project leader
- Budget 5,8 mio €
- Start 1/1/2019 → 1/1/2023
- TRL 3-5



Prof. Kim Ragaert, Ghent University

A polymer materials scientist by background, Kim Ragaert is an associate professor in 'Circular Plastics' (www.circularplastics.ugent.be) at Ghent University. She leads a multidisciplinary research team of around 15 researchers, working to develop the necessary scientific tools to enable the improved mechanical recycling of plastics. Specific research topics include the quality modeling of (contaminated) recycled plastics, upcycling of mixed solid plastic waste, polymer degradation and multiple recycling, Design for Recyclability, Design from Recycling, WEEE plastics and recycling of multilayer packaging materials. She leads and participates in several (inter)national recycling projects. Amongst others, she is the coordinator of C-PlaNeT (<https://www.c-planet.eu/>), a member of HolyGrail2.0 and an associate editor for the high-level journal Waste Management.

Prof. Ragaert is the chair of the Plastics to Resource pipeline within CAPTURE (<http://capture-resources.be>), wherein she creates Circular Plastic synergies with colleagues from 4 different institutes, active in thermochemical recycling, food packaging, sorting/decontamination, policy, consumer behavior and LCA. She is the 2020 European Plastics Recycling Ambassador.





Katharina Ander, REDWAVE

With an engineering background and a broad knowledge of the recycling industry, Katharina Ander joined the R&D team of REDWAVE in early 2019. As expert in NIR-based sorting she is responsible for sorting solutions in plastics, paper, MSW recycling and many more.

Katharina Ander received her bachelor's degree in physics at the University of Leipzig, Germany in 2012 and graduated from engineering school at TU Bergakademie Freiberg, Germany in 2016.



Dr Erik Sluyts, Covestro

Dr. Erik Sluyts studied chemistry and performed his PhD at the University of Antwerp, Belgium. In 1997 he started his professional career at Bayer Antwerpen NV – (since 2015 Covestro NV) and after holding several functions in production in the polyurethane business from 1997 to 2012, he then joined the Technology Center Polycarbonates as lab manager. In this role he supports the polycarbonate production plants with process questions and optimizations such as yield improvement, waste reduction and wastewater topics. In recent years his work is focusing more on polycarbonate recycling topics in line with Covestro's vision to be fully circular.





Inge Baele, Resilux

Inge Baele is Application Specialist at Resilux with a focus on sustainability and barriers, which improve the shelf life of products, packed in PET bottles. She is an industrial engineer and started her career in R&D. Inge also had various business development and product management positions in the polyurethane world and started 2 years ago, after a career at Recticel of almost 20 years, with this exciting role at Resilux.



Secretary General Michel Baumgartner, Europur

Michel Baumgartner is the Secretary General of EUROPUR, the European association of flexible polyurethane foam blocks manufacturers, and of EURO-MOULDERS, the European association of manufacturers of moulded polyurethane parts for the automotive industry. He serves both associations since November 2013. He spent most of his career representing trade associations in Brussels, and notably served as EU Affairs Manager of EUROBAT, the European association of automotive and industrial battery manufacturers. Michel holds a degree in political science from Sciences-Po Strasbourg, where he specialized in international relations and European law.



Karin Clauberg, Covestro

Karin Clauberg has an engineering background and started to work at Covestro about 10 years ago, holding different functions in the area of R&D and industrial marketing. The positions were linked to project management, technology and innovation development and its implementation.

Since 2 years she is responsible for the Chemical Recycling Innovation Platform of flexible polyurethane foams at Covestro. Her work is focusing on the development and industrialization of the technology in line with Covestro's vision to be fully circular.



Jan Willems, Recticel

Jan Willems (R&D expert) graduated as Master of Science in organic chemistry, and started in 1994 working for Recticel as R&D engineer. Between 1998 and 2018, he had different R&D management positions linked to project management, technology, innovation and new business development. In 2018, he became an R&D expert, with focus on sustainability: mechanical & chemical recycling, new sustainable business development.





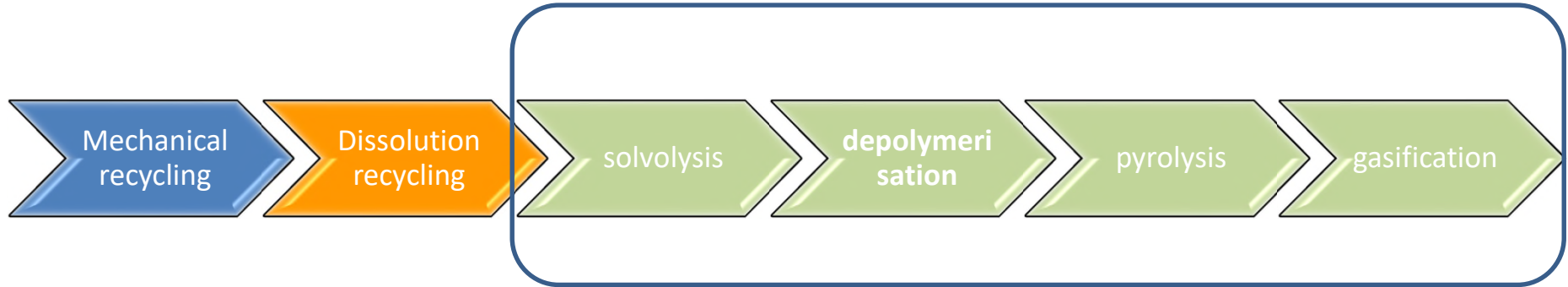
Prof. Dirk E. De Vos, KU Leuven

Prof. Dirk E. De Vos received his PhD at Leuven in 1994, and was active as a post-doc at Purdue University (Indiana, USA) with Thomas Bein. He is since 2006 full professor in Catalysis at Leuven University and is the head of the Department of Microbial and Molecular Systems. The research of his team is conducted within the Centre for Surface Chemistry and Catalysis

He is the recipient of a series of awards, including the BASF catalysis award. He participated in 8 EU projects or networks (Sustox, Nanohost, Idecate, Macademia, DEFNET, SACS, SINMOF, H-CCAT) and in several previous strategic research projects in Belgium. He has long standing collaborations with a series of industries. De Vos authored 445 papers (ISI), of which 24 papers in *Angewandte Chemie*, 21 *JACS* papers, 3 *Nature* papers etc., totalling 17600 citations. The h-index amounts to 71. De Vos is (co-)inventor on 28 Patent families, of which 11 are granted or are on the way to be granted (often in collaboration with industries like BASF). Several more projects are in the pipeline & under negotiation.



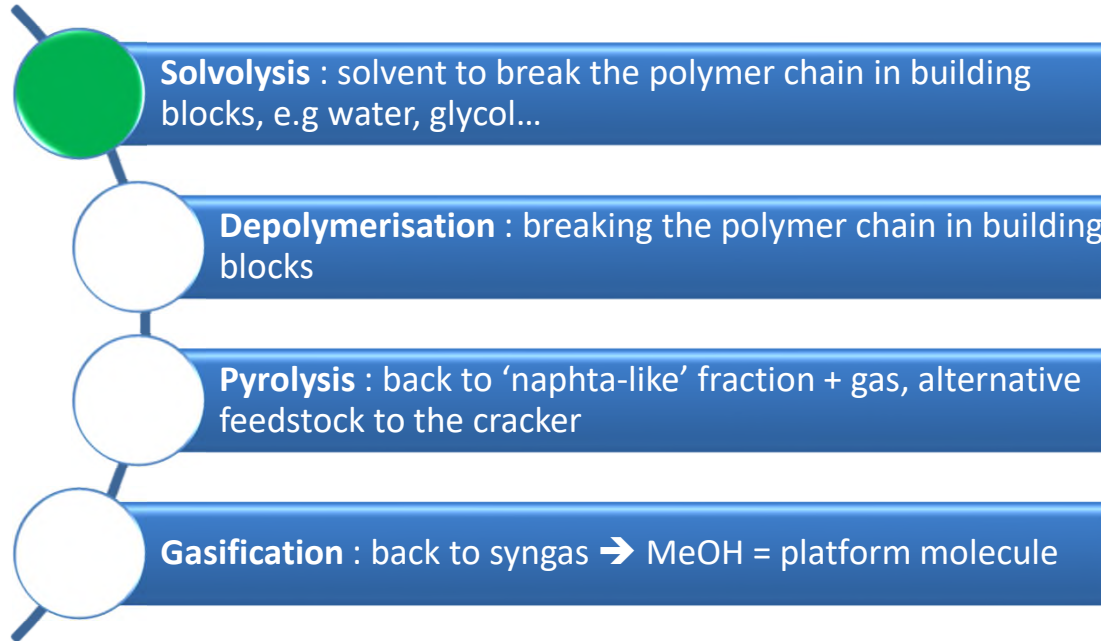
Conclusion



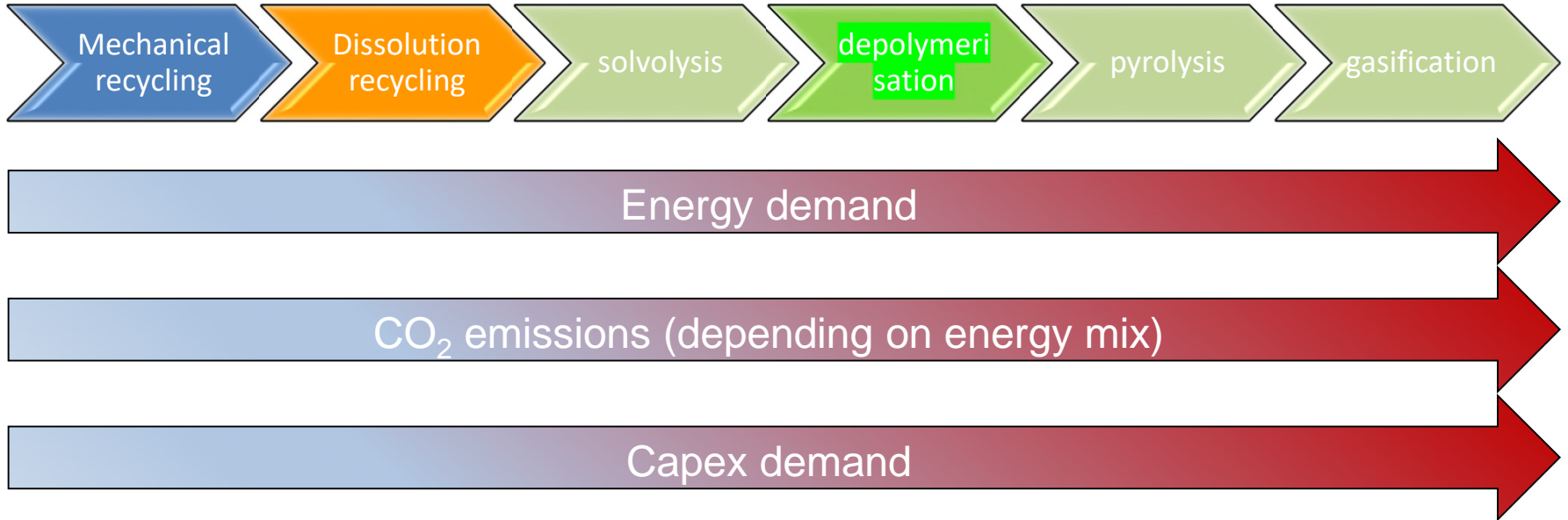
Chemical recycling



Conclusion



Conclusion



How to choose best recycling options

Depending

- On type of polymer
- On desired quality outcome (e.g FCM)
- On overall **environmental** and **economical** impact

