

**Preliminary Program**  
(18/03/2024)

**CHEMREC I: 1<sup>st</sup> International  
Conference on Thermochemical  
Recycling of Plastics**

**April 28 – May 2, 2024**  
**NH Hotel Malaga, Malaga**  
**Spain**

**Conference Co-Chairs:**

**Sascha Kersten**, University of Twente, The Netherlands  
**M. Pilar Ruiz**, Maastricht University, The Netherlands  
**Erik Heeres**, University of Groningen, The Netherlands



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**Sunday, April 28, 2024**

16:00 – 18:00	Registration
17:00 – 18:00	Organizing Committee Meeting
18:00 – 19:00	Welcome reception
19:00 – 21:00	Dinner

**NOTES**

- *Audiotaping, videotaping and photography of presentations are prohibited.*
- *Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).*
- *Speakers – Please leave at least 3 minutes for questions. Extended discussion will take place at the poster session*
- *Please do not smoke at any conference functions.*
- *Turn your cellular telephones to vibrate or off during technical sessions.*

## **Monday, April 29, 2024**

07:30 – 08:30	Breakfast
08:30 – 08:50	Welcome and Conference Opening M. Pilar Ruiz, Maastricht University, The Netherlands
08:50 – 09:25	PLENARY: Catalytic Deconstruction & Upcycling of Plastic Waste in the BOTTLE Consortium Katrina Knauer, NREL, USA
09:25 – 10:00	PLENARY: Chemical Recycling R&D at scale Geoff Smith, Itero, UK

### **TOPIC: PYROLYSIS**

10:00 – 10:20	O122-Pyrolysis of Multilayer Plastics: A Promising Route to Resource Recovery and Environmental Sustainability. Joonas Lahtinen, VTT, Finland
10:20 – 10:40	O103-Single vs Double Stage Pyrolysis of Plastic Waste - Experiments, Characterization, and Techno-Economic Analysis Maddalena Laghezza, ICFAR/Western University, Canada
10:40 – 11:10	Coffee Break
11:10 – 11:30	O125- Pyrolysis of waste polypropylene plastics for energy recovery: Study comparisons between bench scale and a commissioned kilogram-scale rotary kiln reactor. George Kofi Parku, Karlsruhe Institute of Technology, Stellenbosch University, Germany
11:30 – 11:50	O139- Thermochemical Recycling of Household Plastic Waste. Run Ze Cao, University of Western Ontario, Canada
11:50 – 12:10	O143- Model and experimental assessment during pyrolysis of different polymers from the waste stream of a composting plant. Davide Sorino, University of Rome Tor Vergata, Italy

### **TOPIC: GASIFICATION**

12:10 – 12:30	O142- Effect of gasifying agent on textile waste gasification process. Jesus Arauzo, University of Zaragoza, Spain
12:30 – 12:50	O133- Make waste a resource: Thermal cracking for the valorization of mixed plastic waste. Surika van Wyk, TNO, The Netherlands
13:00 – 14:00	Lunch

14:00 – 14:20 O126- Experimental and modeling results of steam-oxygen gasification of plastic waste in a pilot scale fluidized bed reactor.  
Francesco Parrillo, University of Campania Luigi Vanvitelli, Italy

**TOPIC: DEHYDROGENATION**

14:20 – 14:40 O149- Thermocatalytic dehydrogenation of plastic wastes assisted by ZnCl<sub>2</sub>-based molten salts  
Claudia Prestigiacomo, Engineering Department, University of Palermo, Italy

**TOPIC: HYDROTHERMAL / HYDROLYSIS**

14:40 – 15:00 O102- Multilayer plastic recycling through two-stage hydrothermal liquefaction.  
Edoardo Tito, Politecnico di Torino, Italy

15:00 – 15:20 O138- Hydrolysis of PET: Increasing the monomer recovery by recirculating the aqueous phase.  
Aiman Shabbir, Aalborg University, Denmark

15:20 – 15:40 O140- Validation of a flow system for hydrothermal processing of PET waste.  
Antonio Jaime-Azuara, Aalborg University, Denmark

15:40 – 16:00 O141- Process development and environmental assessment of mechanochemical PET depolymerization as a circular economy strategy.  
Paula Milena Rincon Trujillo, Ruhr Universität Bochum, Germany

16:00 – 17:30 Poster session and social time

Dinner on your own

**Tuesday, April 30, 2024**

- 07:30 – 08:30 Breakfast
- 08:30 – 09:05 PLENARY: Covestro will become fully circular  
Stefanie Eiden, Covestro, Germany
- 09:05 – 09:40 PLENARY: Effect of a reflux on the composition of liquids from plastic  
pyrolysis  
Anthony Dufour, CNRS, University of Lorraine, France

**TOPIC: CATALYSIS**

- 09:40 – 10:00 O132- Selective Catalytic Conversion of Impurities in Multilayered Polymer  
Films.  
Steven Crossley, University of Oklahoma, USA
- 10:00 – 10:20 O111- Catalytic hydrothermal liquefaction of polystyrene: a subcritical  
approach for recovery of high-value products.  
Joshua Ruland, TU Delft, The Netherlands
- 10:20 – 10:40 O107- Microwave-assisted catalytic pyrolysis of polyethylene into carbon  
nanotube and hydrogen.  
Fatemeh Vatankhah, Polytechnique Montreal, Canada
- 10:40 – 11:10 Coffee Break
- 11:10 – 11:30 O144- From waste polyolefines to benzene, toluene and xylenes using  
catalytic pyrolysis: effects of impurities in the feed on catalytic aromatization.  
Hero Jan Heeres, University of Groningen, The Netherlands
- 11:30 – 11:50 O135- Hydrochemolytic technology for high-yield conversion of complex  
plastic waste to high-value saturated hydrocarbon  
Eric Appelman, Aduro Clean Technologies, Canada
- 11:50 – 12:10 O118- pH-modulated metal-support interactions for polypropylene  
hydrogenolysis using Ni/Al<sub>2</sub>O<sub>3</sub> catalysts  
Xiyang Huang, University of Groningen, The Netherlands
- 12:10 – 12:30 O130- Size and Structure Effects of carbon-supported Ruthenium  
nanoparticles on waste Polypropylene Hydrogenolysis.  
Jessie Sun, University of Delaware, USA
- 12:30 – 12:50 O110- Chemical recycling of hard to recycle mixed waste plastics.  
Matthijs van Akker, BioBTX, The Netherlands
- 13:00 – 14:00 Lunch

## TOPIC: FUNDAMENTALS

- 14:00 – 14:20 O114- Mass Transfer Effects on the Intrinsic Kinetics in Polyethylene Pyrolysis.  
Dwiputra Muhammad Zairin, University of Twente, The Netherlands
- 14:20 – 14:40 O115- Kinetic analysis of the degradation of polystyrene waste: The influence of impurities and particle size.  
Darius Steegborn, Ruhr Universität Bochum, Germany
- 14:40 – 15:00 O131- Reaction Pathways in the Catalytic Hydroconversion of Poly(ethylene-co-vinyl alcohol) Multilayer Films into Lubricants and Fuels.  
Christine Oberhausen, University of Delaware, USA
- 15:00 – 15:20 O145- Kinetic boost of the PET glycolysis reaction.  
Maria Schlüter, TU Dortmund University, Germany
- 15:20 – 15:40 O150- The behaviour of plastic particles in fluidized bed reactors during pyrolysis: a Monte Carlo approach  
Stefano Iannello, University College London, UK
- 15:40 – 16:00 O151- Validation and development of predictive modelling for pyrolysis of mixed plastics.  
Jesper Thygesen, Aalborg University, Denmark
- 16:00 – 17:30 Poster session and social time  
  
Dinner on your own

### **Wednesday, May 1, 2024**

- 07:30 – 08:30            Breakfast
- 08:30 – 09:05            PLENARY: Chemical recycling of plastics via hydrothermal depolymerisation  
Patrick Biller, Aarhus University, Denmark
- 09:05 – 09:40            PLENARY: Plastic recycling stripped naked – from circular product to circular  
industry with recycling cascade  
Sascha Kersten, University of Twente, The Netherlands

#### **TOPIC: PRE-TREATMENT / POST-TREATMENT**

- 09:40 – 10:00            O128- Upwash: a Pre-treatment of sorted plastic wastes to bridge the gap  
between waste logistics and (chemical) recycling.  
Rinke Altink, TNO, The Netherlands
- 10:00 – 10:20            O124- The importance of post treatment in thermochemical recycling of  
plastic waste.  
Farah Siddiq, VTT, Finland
- 10:20 – 10:40            O108- Revalorization of the heavy oil fraction from the pyrolysis of plastic  
wastes.  
Danais Peña Rodriguez, Unit for Sustainable Thermochemical Valorization,  
CIEMAT, Spain
- 10:40 – 11:10            Coffee Break

#### **TOPIC: PYROLYSIS**

- 11:10 – 11:30            O112- Pyrolysis of packaging plastic waste (DKR350): from lab-scale to pilot  
plant studies.  
M. Pilar Ruiz, University of Twente, The Netherlands
- 11:30 – 11:50            O105- Robust downstream technologies in polystyrene waste pyrolysis:  
Design and prospective life-cycle assessment of pyrolysis oil reintegration  
pathways.  
Meike Holtkamp, Ruhr-University Bochum, Germany
- 11:50 – 12:10            O109- From plastic waste to refinery - turing plastic waste into a suitable  
feedstock for the production of new materials.  
Julian Strien, University of Groningen, The Netherlands
- 12:10 – 12:30            O123- Can chemical recycling rescue challenging plastic waste streams?  
WEEE plastics case study.  
Muhammad Saad Qureshi, Neste, Finland
- 12:30 – 12:50            O148- Autothermal pyrolysis of Mixed Plastic Waste (MPW).  
J.M. López, Instituto de Carboquímica-CSIC, Spain
- 13:00 – 14:00            Lunch

- 14:00 – 15:40            **Round table: What are the industrial needs for chemical recycling?**
- 15:40 – 16:00            Afternoon refreshment

**TOPIC: NON-TYPICAL FEEDS**

- 16:00 – 16:20            O104- Pyrolysis of Lead Acid Battery Polymeric Cases: Technical Challenges and Innovative Solutions for Hydrogen Production.  
Maddalena Laghezza, ICFAR/Western University, Canada
- 16:20 – 16:40            O117- Pyrolysis of Waste Tires and Plastic Waste in a Fluidized Bed Reactor.  
Rafail Isemin, Biopti'Tech Company, Germany
- 16:40 – 17:00            O147- Pyrolysis as an efficient circular strategy of recycling waste PMMA.  
Jose Manuel López, Instituto de Carboquímica-CSIC, Spain
- 17:00 – 20:00            Networking/Free time
- 20:00 – 21:30            Gala dinner



## **Thursday, May 2, 2024**

- 07:30 – 08:30 Breakfast
- 08:30 – 09:05 PLENARY: Catalytic solutions for the chemical recycling of waste plastics via pyrolysis  
Peter Deuss, University of Groningen, The Netherlands
- 09:05 – 09:40 PLENARY: Blue Alp technology

### **TOPIC: PROCESS DEVELOPMENT**

- 09:40 – 10:00 Consequences of heat transfer limitations on plastic waste pyrolysis reactor scale-up.  
Sabriye Fredriksson, Sabic, The Netherlands
- 10:00 – 10:20 O101- Thermolysis and upcycling of PE and PP waste into surfactants.  
Guoliang Liu, Virginia Tech, USA
- 10:20 – 10:40 O106- Valorization of Mixed Plastic Waste Using Subcritical Wet Oxidation for Feedstock Recycling into Carboxylic Acids: Assessment and Future Scale-up Perspectives.  
Niccoló Pezzati, RECORD, Italy
- 10:40 – 11:10 Coffee Break
- 11:10 – 11:30 O116- Twin Screw Extruders in Chemical and Solvent Based Recycling Technologies - Closing the Material Loop of Recyclates through Chemical Recycling Technologies.  
Franz-Xaver Keilbach, KraussMaffei Extrusion, Germany
- 11:30 – 11:50 O121- Upcycling of Polyethylene Waste into Thermoplastic Elastomer with Superior Mechanical Properties.  
Yinlong Chang, Zhejiang University, China
- 11:50 – 12:10 O127- Integrating Pyrolysis and Chemical Leaching Process for Pulper Waste Conversion into Liquid, Coal, Hydrogen and Chemical Flocculating Agent.  
Andrea Salimbeni, RECORD, Italy
- 12:10 – 12:30 Thermochemical recycling of mixed plastic wastes through pyrolysis and steam cracking – assessment of centralized vs. decentralized approaches.  
Ivan Gogolev, Chalmers University, Sweden
- 12:30 – 12:50 O146- Developing an integrated and environmentally friendly downstream of the PET glycolysis process.  
Maria Schlüter, TU Dortmund University, Germany
- 12:50 – 13:00 Closing remarks
- 13:00 – 14:30 Lunch and departures