

35th Annual European Seminar

'GREEN TECHNOLOGY AND ENERGY TRANSITION DEVELOPMENT IN THE LIGHT OF PLANT SAFETY'

 **November 23rd, 2021**

 **Louwman Museum, The Hague**

Safety is a key priority for the chemical industry. The Green Deal ambitions (e.g. carbon neutrality by 2050) result in a transformation of the chemical industry that will generate new safety challenges. In particular, changing infrastructure in process manufacturing industries and changes in operating regimes and environmental efforts can adversely affect equipment integrity and reliability.

During the seminar, quite some recent technology developments will be discussed especially with an open eye on safety aspects along the complete supply and value chain.

The 35th European AIChE Seminar is an effective platform for interacting and sharing insights with industry leaders and professionals.

Location

Louwman Museum
Leidsestraatweg 57
2594 BB Den Haag
The Netherlands

Registration and information:

AIChE NL/B Secretariat
Mrs. Kitty Bentvelsen
Email: aiche@kborganisatietalent.nl
Phone: +31-6-41464811

Fees

Participant: 180 euro

Sponsor: 160 euro

- * Cancellation after November 15th cannot be accepted; delegate substitutions may be made at any time at no costs.
- * To participate the seminar, you are obliged to show your corona check app.

Program

13 : 30	Registration and coffee
14 : 00	Opening
14 : 15	Presentations and Q&A
15 : 45	Break
16 : 15	Presentations and Q&A
17 : 45	Closing
18 : 00	Drinks and dinner

 Speakers

Chemical Recycling via Plastics Pyrolysis - Technical and Legal Hurdles on the Road Ahead

Henk Hagen - Senior Technology Manager Sustainability at DOW, and
Philip de Smedt - Director Petrochemicals Europe at Cefic

Chemical recycling is considered a key technology for the chemical industry to achieve the EU plastics recycling targets. Chemical recycling can be carried out via a few routes with currently the most important one being gasification and pyrolysis. Pyrolysis has the advantage that a liquid is produced that in essence can be applied as feedstock in existing liquid hydrocarbon steam crackers. Unfortunately, the quality of Plastics Pyrolysis Oil (PPO) is such that direct use is limited. In order to unlock the full potential of PPO as a circular feedstock the material needs to be subjected to a clean-up step via hydroprocessing. Hydroprocessing of PPO comes with various challenges that will need to be addressed before it can be applied at commercial scale.

This lecture will focus on the quality aspects of PPOs that circumvent the direct use, as well as the challenges that arise when trying to clean them. Despite all the efforts on the implementation of chemical recycling, the recognition of chemical recycling in EU legislation, e.g. End of Waste Directive, is still unclear. Next to the specifics on the technical aspects of chemical recycling via pyrolysis, some insights will be given on the efforts by Cefic, the European association for the chemical industry, to defend the position of chemical recycling.

Henk Hagen is currently Senior Technology Manager Sustainability for the Hydrocarbons & Energy Business of the Dow Chemical Company. Before moving into this role in 2020, he had worked in roles across various technologies such as polyolefins, butadiene to 1-octene, polyglycols and ethyleneamines, covering R&D as well as manufacturing. He started his career at Dow in 2000 after obtaining a Ph.D. in chemistry from Utrecht University.

Philip de Smedt is currently Director Petrochemicals Europe at Cefic. He is seconded from Total. Before joining Cefic, he has worked in various engineering functions at Shell, Jacobs Engineering and Total. Since September 2008, he is also a Visiting Professor at the Chemical Engineering Department of the University of Gent, Belgium, where he gives courses on how to design (petro)chemical plants.

Safety Hazard Assessment of Biogas Cleaning and Upgrading Process: a Case Study

Julia Di Domenico Pinto - Safety Process Engineer at FLUOR

In her presentation Julia will discuss a case study where a safety hazard analysis is performed on a biogas production process. Switching the energy matrix to renewable/carbon-free sources is a path many countries are pursuing. In this context, biogas stands out as a relevant renewable circular process as it can generate a renewable fuel from waste streams. The study was done together with Diego Di Domenico Pinto (Process Engineer Director in Hovyu).

It is not uncommon that hazardous materials are formed, processed, or stored during the biogas production. In the past years, several accidents in the biogas process production were reported, resulting in human deaths, environmental pollution, and relevant economic losses. In many cases the causes of the accidents are still unknown. In several cases there is an absence of sufficient knowledge about the biogas process hazards and how to find them. Besides, it is hard to find a consistent accident database related to biogas production processes.

The cleaning and upgrading biogas process are based in chemical absorption technology and involves several hazardous materials, including hydrogen sulfide (H_2S), which is a colorless poisonous, corrosive, and flammable gas. Findings and recommendations will be presented.

Julia Di Domenico Pinto has a degree in Chemical Engineering, Professional Doctorate in Process and Product design and a post-graduation in HSE. She has been working as a safety process/process engineer for 10 years where she develops and/or leads HSE (Health Safety and Environment) design studies of engineering projects in chemical/petrochemical areas (e.g. deluge systems, area classification, fire hazard analysis, HAZOP, etc). Among other distinctions Julia is also engaging the sustainability mind set in the search for better ways to produce energy amongst them, the biogas.

Carbon Capture - why, who, what & how

Michiel Baerends - Senior Fellow and Principal Process Engineer at FLUOR

The presentation will cover the key topics in Carbon Capture

- ③ Why should clients be interested in capturing carbon?
- ③ Who is already practicing carbon capture, and where?
- ③ Where is all the captured CO₂ going to go?
- ③ What technical options are available, how does the process work?
- ③ How much is it all going to cost – and how to lower this cost?
- ③ What to do next?

An attempt will be made to provide answers, at least partial, to all the above questions, hopefully enlightening all those in the audience that are not already deeply involved in carbon capture.

Based on his expertise in refinery process technology, Mr. Baerends has been active in refinery and gas processing projects from concept studies to start-up support, with an emphasis on front-end study and basic engineering work. His experience covers the great majority of refining processes, as well as sulfur recovery and gas treating. The latter also covers his involvement with Fluor's Econamine FG+ (SM) technology. Mr. Baerends has worked out of several Fluor offices around the world, including California, South Africa, UK and Abu Dhabi.

Role of Hydrogen in the Energy Transition, some Challenges related to Development of the H₂ Value Chain

Taco Hoencamp MSc - Senior Project Manager at Royal HaskoningDHV

In his presentation he will address the role of hydrogen in the energy transition, different colors of hydrogen production methods, some challenges related to development of the hydrogen value chain, and safety aspects related to the use of hydrogen.

Taco Hoencamp is a senior project manager of the Energy & Environment Advisory Group of Royal HaskoningDHV and involved in energy and energy transition projects of Industry parties for more than 30 years. He has a Master degree in Water management and working on environmental, safety and stakeholder issues in The Netherlands as well as abroad. He is active in Projects in which energy efficiency, sustainable heat, electrification and hydrogen options are assessed for decarbonisation and CO₂ emission reduction. Since 2021 he is theme lead of the Energy and Industry group of the Dutch H₂ Platform.

The last years he is involved in a number of large blue and green hydrogen production projects. And gained a good insight into the technical concepts, the challenges and opportunities that lie ahead for this new form of energy in the future energy system of the Netherlands, and the industry in particular. In the context of market consultations and studies, he gained insights in the conditions under which different potential offtakers would like to switch to hydrogen. This concerns technical, economic, social and safety preconditions.

Yes, I would like to attend the 35th Annual European Seminar '**Green Technology and Energy Transition Development in the Light of Plant Safety**' on Tuesday November 23th, 2021.

 [Click here to register now](#)

AICHE is sponsored by:

FLUOR[®]

ExxonMobil



Honeywell
UOP

KHEngineering



MCDERMOTT