

The AIChE Netherlands / Belgium Section
is pleased to invite you to attend the Lecture Dinner Meeting

'Molten Metal Pyrolysis for Hydrogen production'

by Rajat Bhardwaj - Research Scientist TNO

Thursday, September 12, 2019 – Golden Tulip Zoetermeer

Program

17.30 – 18.00	:	Registration & Cocktails
18.00 – 19.00	:	Lecture
19.00	:	Dinner

Summary

Via molten metal pyrolysis Hydrogen is produced without CO₂ emissions. Carbon is produced instead of CO₂. This carbon can be sold as product for applications such as tires, pigments in polymers, rubbers and energetic electrode materials.

The technology is at least 25 % more cost effective compared to other ways of producing H₂ without CO₂ emission. The molten metal acts as catalyst, which lowers the operating temperature of the process to about 1000 °C. This temperature is considerably lower than the temperature in blast furnaces in the steel industry that operate at about 1600 °C. Most components of the molten metal pyrolysis technology can be based on existing large-scale technologies, e.g. high temperature molten metal processing at steel manufacturing, hydrogen separation and transport at Hydrogen Reformers, carbon handling and storage of carbon black production.

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The key gap remaining in the implementation of the technology is the carbon separation. Molten salts are used to create a separation layer using density differences. TNO (Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek) has an Intellectual Property position on this.

TNO has experience in gas treatment for more than 30 years. This experience and recent work with molten metals and salts resulted in developing this new technology. The next step is to take this technology towards a commercial demonstration project in the coming three to five years. By 2021, a first continuous process is envisaged. TNO has established collaboration with companies and universities seeking to strengthen the vision further.

Professional Background of the Speaker

Rajat Bhardwaj has a BE in Chemical Engineering of Mumbai University and a MSc of Delft University of Technology (2010) and now works as research scientist for TNO. In this role, he develops new technologies and techno-economical roadmaps for achieving reduction in CO₂ emissions for companies and industrial clusters in the Netherlands. The prime motivation is to assist companies in addressing techno-economic challenges for application of carbon neutral pathways while maximizing the use of existing infrastructure, enabling long-term license to operate and minimizing the costs. Rajat's focus is towards low carbon technologies such as methane pyrolysis, CO₂ to Dimethyl Ether (DME) and direct air capture for greenhouse gas.

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Registration Form

Yes, I would like to attend the Lecture Dinner Meeting with the subject: 'Molten Metal Pyrolysis for Hydrogen production' on Thursday, September 12th, 2019.

Company: _____

Name: _____

Job Title: _____

Email: _____

Diet: _____

Please send the invoice to:

Company: _____

Attn.: _____

Address: _____

City: _____

Reference: _____

Fees

Participant: 80 euro

Sponsor: 50 euro

Registration by mail: aiche@kborganisatietalent.nl

A week before the start of the Lecture Dinner Meeting you will receive a confirmation with practical information and your invoice. Free cancellation is possible, when in writing, 48 hours prior to the event.

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