

TECHNOLOGY HORIZONS

A publication by Zetron, the pilot plant specialists



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IN THIS ISSUE

Zetron Inc. assists CRI/Shell in final pre-commercial scale-up of IH² technology

Zetron B.V. delivers first 1 MW scale commercial Power-To-Gas (P2G) demonstration plant to Electrochaea

Zoomers run into heavy traffic at annual AI Reid tournament

Zetron sponsors and exhibits at AIChE's Process Development Symposium from June 6-8, 2017 in Toronto

AND MORE!



Horizons is also available on our website at zetron.com



ZETON INC. OPENS NEW SATELLITE MANUFACTURING FACILITY

Following the celebration of Zetron's 30th year anniversary in 2016, Zetron Inc. is pleased to announce the opening of a new, state-of-the-art, satellite manufacturing facility in Oakville, Ontario. The new facility, situated within four kilometers of the existing head office location in Burlington, consists of offices, and low bay and high bay manufacturing space. The facility is designed in such a way that it can be expanded over time to accommodate additional project workload,

and features a bay designed specifically for the fabrication of sanitary systems for the food, biotech and pharma industries.

President David Beckman, "Our new satellite facility is the result of significant growth experienced by Zetron Inc. over the past decade. Our customers are increasingly looking for multiple plants delivered on an accelerated schedule to scale their businesses, and our new satellite facility will serve this need, while also offering customers with

specific requirements for the fabrication of sanitary systems a dedicated area for their projects."

While the corporate head office will remain in Burlington at the Oval Court facility for the foreseeable future, the satellite facility eliminates the need to lease short term manufacturing space, and affords the Company significant flexibility in accommodating its future project workload. ■

“ZETON WORKED CLOSELY WITH OUR TEAM, DELIVERED THE FACILITY ON TIME, AND COMPLETED INITIAL ASSEMBLY ON SITE BEFORE NOON ON THE DAY OF DELIVERY.” MICH HEIN, CEO, ELECTROCHAEA GMBH

ELECTROCHAEA CREATES PIPELINE-GRADE RENEWABLE GAS USING P2G



Electrochaea GmbH has developed a disruptive and cost-effective energy conversion system using a patented biocatalyst to convert low-cost and stranded electricity and carbon dioxide into pipeline-grade renewable gas that can then be directly injected into the existing natural gas grid. This process is commonly referred to as “power-to-gas,” or P2G.

The organism used in the process (methanogenic archaea) has several unique properties, including high mass conversion efficiency, tolerance to many contaminants typically found in biotechnology and industrial CO₂-sources (oxygen, hydrogen sulfide, particulates), high selectivity in methane production, and very fast reaction kinetics. After successful completion of lab-scale and pre-commercial field trials, Electrochaea felt the process was ready to go big, and teamed up with Zeton to design and build a 1 MW demonstration plant.

Designing for a biocatalyst required innovative ideas not only in equipment design but also in operating philosophies. The plant needed to be a combination of a first-of-its-kind processing plant and a commercial scale unit, which put significant stress on designers to meet both the high-tech research requirements and the available budget. However, combining Electrochaea’s experience in the process and Zeton’s knowhow and scale-specific engineering expertise delivered the right conditions for meeting scale-up constraints. In less than a year, basic engineering, detail design, assembly and testing of the large scale modular plant was completed.

Recently, Zeton has partnered on several projects in the field of power-to-products (P2P) and carbon capture and utilisation (CCU), and we expect to see many similar technologies developed in the coming

years. It is an exciting time in circular economy research and design, and we look forward to working jointly with our customers to realize restorative and regenerative industrial process design.

Mich Hein, CEO, Electrochaea GmbH:

“One of the biggest challenges when designing and assembling the BioCat plant was our extremely tight time schedule. Zeton worked closely with our team, delivered the facility on time, and completed initial assembly on site before noon on the day of delivery. We continue to collaborate with Zeton and are pleased with their leading role in executing on Electrochaea’s first megawatt-scale BioCat plant.” ■

ZETON ASSISTS CRI/SHELL IN THE SCALE UP OF IH²* TECHNOLOGY

Zeton Inc. successfully completed the design and fabrication of a 5 ton/day IH² process demonstration scale plant for Shell India Markets Private Limited (Shell). The IH² technology is a catalytic thermochemical process that promises to provide a cost-effective route to produce fungible liquid hydrocarbon transportation fuels from renewable resources. This process was invented by the Gas Technology Institute (GTI) of Des Plaines, IL and further developed with CRI Catalyst Company LP (CRI) of Houston, TX. CRI, a global catalyst technology company of the Royal Dutch Shell Group, holds the license for exclusive worldwide deployment.

Over the past 10 years, Zeton has assisted CRI in the scale up of this technology through the design and fabrication of a 40 g/hr lab scale unit, a 50 kg/day

pilot plant, and most recently the 5 ton/day demonstration plant pictured to the right. The continued long term collaboration of CRI, GTI, Shell, and Zeton was instrumental in overcoming numerous technical challenges during the scale up of this technology.

The most significant technical challenge overcome during the project was the requirement to continuously feed a wide variety of biomass into a high pressure, high temperature hydrogen atmosphere. Zeton's extensive bioenergy experience along with its scale specific knowledge learned from its long history designing and building pilot and demonstration plants led to the unique and innovative design which was successfully tested at Zeton.



The plant is currently in the midst of commissioning at Shell's New Technology Center in Bangalore, India with expected start-up in Q3 of 2017. ■

*IH² is a trademark of GTI

TEAM SPIRIT HIGHLIGHTING THE ACCOMPLISHMENTS OF OUR STAFF IN THE DUTCH AND CANADIAN OPERATIONS

ZOOMERS RUN INTO HEAVY TRAFFIC AT THE AL REID HOCKEY TOURNAMENT

In their opening game of the perennial Al Reid Hockey Tournament the Zeton Zoomers crashed into stiff competition from the automotive industry as Collee Automotive accelerated past the Zoomers scoring 8 unanswered goals. Ouch!

With Friday's loss in the rear view mirror and feeling slightly deflated, the Zoomers battled its demons with Lennie Bristow, Shawn Michaud, and Gerry Serratore (a.k.a. "Janine's Dad") freezing out the Burlington Dirty Devils in a 3-0, game-2 victory, assisted in no small part by the

Dirty Devils' goal tender being a little "the worse for wear".

Zeton's spirits were high entering the third match on Saturday afternoon against another competitor from the auto industry. Unfortunately Millers Auto Recycling used nifty stick work to disassemble the Zoomers, scrapping any hope of Zeton advancing to the final championship game on Sunday morning.

Coach Adam Whalley dismissed the loss, focussing on the team's comradery,

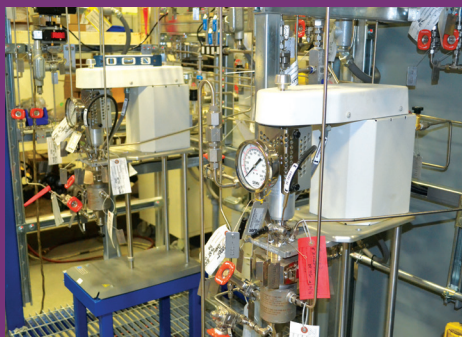
"A year older, and a year wiser! The team is really starting to gel now and with some small adjustments to our strategy I think we have a real shot at making the finals again next year."



IN BRIEF

HIGHLIGHTING RECENT AND COMPLETED PROJECTS AND ENGINEERING STUDIES

- A ReOil pilot plant
- A BIO-Hart project
- A nanofiltration test rig
- A canola oil injection skid
- Detailed design and fabrication of a fermentor pilot plant
- A control system upgrade for a lab scale polyolefins reactor system



A pilot scale catalyst feed system



A lab scale catalyst production system



A miniature lab scale hydrotreater system



A catalyst testing unit

PLEASE VISIT ZETON AT:



2017

Process Development Symposium

June 6-8, 2017 | Toronto, ON, Canada

"Scaling Up Processes: Solving Common Challenges"



CONTACT US

TO DISCUSS YOUR PROJECT REQUIREMENTS,
OR ITEMS IN THIS ISSUE OF HORIZONS, PLEASE CONTACT:

ZETON INC.

740 Oval Court
Burlington, Ontario
Canada L7L 6A9

Phone: +1 905 632 3123

E-mail: info@zeton.com

David Edwards
Adam Whalley
Sulogna Roy

ZETON B.V.

Marssteden 206
7547 TD Enschede
The Netherlands

Phone: +31 (0)53 428 4100

E-mail: info@zeton.nl

Herman Bottenberg
Thomas Ladrak
Robert-Jan Zwiers

Visit us online at www.zeton.com