

TECHNOLOGY HORIZONS

A publication by Zetron, the pilot plant specialists

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RECYCLING PROJECTS ARE ON THE RISE

More and more, recycling projects are on the rise, and Zetron has seen a clear trend in recent years. The reuse of waste materials is a high priority for many governments, and companies are doing their part by actively working to make this a reality. Innovative research is being funded to contribute to a circular economy, where eliminating waste and the reuse of resources are two central goals.

The ReOil® recycling plant from OMV is an example of such a project. Many years ago, OMV developed and patented worldwide the ReOil process which is based on thermal cracking, a proven refining technology, whereby long-chain

hydrocarbons are cracked into shorter-chain light hydrocarbons. This unique process uses a solvent to decrease the viscosity of the plastic feed, and improve the overall heat transfer.

As a next step in developing the process OMV invested in the construction of a pilot plant at the Schwechat Refinery in Austria. Beginning with a Basic Engineering Study, Zetron assisted OMV in realizing the ReOil recycling plant, which produces synthetic crude oil from plastic waste. This pilot plant, which processes 100 kg/h of waste plastics, will generate all the data required to enable the scale-up to a commercial-scale installation.

Since this plant operates at very high temperatures, and includes solid plastic handling, it certainly wasn't a straightforward design-build project.

This is only one of the recycling projects to which Zetron has been able to contribute recently. We are proud that our customers have chosen Zetron as their design-build partner, and that we are able to contribute to the circular economy together.

For a closer look at OMV's recycling plant, please go to <https://www.omv.com/en/sustainability/our-approach/our-strategy> ■

"ZETON'S PRIDE AND PROFESSIONALISM IS REFLECTED IN THE QUALITY AND ACCURACY OF YOUR WORK." JEFF CHANG, ENGINEERING MANAGER, BASF

ZETON DELIVERS MODULAR PILOT PLANT TO BASF

Zeton recently delivered a five-module pilot plant to BASF in Freeport, Texas. This project was executed on an accelerated 33 week schedule, having originally been projected at 43 weeks. The project was originally contracted between Zeton's European operation, Zeton B.V., and BASF's German Operation in Ludwigshafen. However, early in the project life the final destination was changed to Freeport and the execution plan was shifted from Zeton B.V. in Enschede, NL to Zeton Inc. in Burlington, ON.

As a consequence, project management and communications for this project in the early stages involved project teams in multiple countries and time zones; Zeton B.V. (Enschede, NL), BASF-LU (Ludwigshafen, DE), Zeton Inc.

(Burlington, ON), BASF-H (Freeport, TX), as well as BASF's site engineering contractor ICA-F (Mexico City, MX). Commenting on the communication challenges and project management philosophy for a globally based team, Zeton Inc.'s Senior Project Manager John Onesi, P.Eng., PMP: "When dealing with multiple teams across many locales it becomes important to have strong project controls, communication plans and robust documentation management plans in place for the project. The handling of these types of virtual teams also requires consideration for document sharing platforms like SharePoint™, interfacing tools like WEBEX™ as well as other means to communicate remotely, such as FaceTime™. Zeton employs all these tools so that diverse customer teams and

their clients and contractors can be fully engaged in the project life cycle."

BASF's Engineering Manager, Jeff Chang:

"The BASF project team was very impressed by the capabilities and flexibility Zeton demonstrated on this project. The team at Zeton really went the extra mile to accommodate our requests. Additionally, Zeton's pride and professionalism is reflected in the quality and accuracy of your work. BASF is looking forward to operating this plant in the near future. Great job, and thanks to all." ■



ELI LILLY'S AWARD WINNING PROJECT IS EXTENDED WITH AN ADDITIONAL MODULE

Eli Lilly and Company, a global healthcare leader that unites caring with discovery to make life better for people around the world, has taken delivery of a new skid in collaboration with Zeton. This skid will complement the existing modular production facility (SVC) for which Eli Lilly and Company won the prestigious 2019 ISPE Facility of the Year Awards in the category of Process Innovation.

The existing modular production facility is referred to as Small Volume Continuous (SVC) because it is targeted at pipeline products with an annual volume less than 1.5 metric tonnes. The continuous unit operations are provided on mobile skids that can be interconnected and configured in multiple ways. The skid modules and feed vessels are interconnected with flexible tubing which can be dedicated to a single product or disposed of after use. Continuous process skids include plug flow reactors,

continuous stirred reactors, distillation, extraction, filtration, and crystallization.

The new process skid focuses on filtration. This dual filtration skid operates with a duty filter and an off-line filter for actively removing product and liquefying the cake. The operation and sequences of the filter and the checks for possible malfunctions are regulated by the operating system which is designed for "plug and play" so that it can be configured in multiple sequences and is recognized immediately by the distributed control system (DCS).

Zeton contributed to this project through our expertise in pharmaceutical processes and modular, scale specific know-how in design and construction. The SVC facility provides a window to the future of active pharmaceutical ingredients (API) production in the pharmaceutical industry. ■



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

CONGRATULATIONS TO DAVID BECKMAN ON HIS RETIREMENT

On June 24, 2019, the staff at Zeton in Burlington held a celebratory lunch to honour the retirement of David Beckman, CEO, one of the seven founding employees of Zeton Inc. Visitors from Zeton B.V. in The Netherlands included Johan ter Harmsel and Rob van Dongen. Special guests at the event included David's brother and sister, Kip and Susan, and former Chairman, Archie Bennett.

From the Company's inception in February 1986, David brought a synergistic combination of technical skill, innovative thinking and business acumen to his role, helping to establish Zeton as the global leader in its industry. A competitive sportsman in

his private life, David shared many valuable lessons with those he mentored in the Company, including perseverance and courage in the face of adversity, the ability to stay calm under pressure, the importance of walking in our customer's shoes, and always keeping the big picture in mind.

In recognition of David's special talents as an engineer and leader, he was awarded the 2017 CSChE Design and Industrial Practice Award, and the 2018 Ontario Professional Engineers Engineering Medal for Entrepreneurship. He is the outgoing 2018-19 CSChE President, and is on the Board of Advisors for the University of Toronto,

Department of Chemical Engineering and Applied Chemistry.

To David and Paula, all the very best for a long and happy retirement from your friends at Zeton in Canada and The Netherlands.



Pictured L-R: David Beckman, Chris Brown, Sean Murray, John Grieve, Paul Gailey, Brendan McDonald and Leisl Dukhedin-Lalla

IN BRIEF

HIGHLIGHTING RECENT AND COMPLETED PROJECTS AND ENGINEERING STUDIES

- A high purity distillation system in electronic chemicals service
- A biomass phase separation skid
- A reagent dosing skid in pharma service
- A dual filtration skid in pharma service
- A deasphalting pilot plant
- An engineering study for a batch to continuous/flow chemistry plant
- An engineering study for a plug and produce flow unit
- An engineering study for a synthetic natural gas (SNG) demonstration plant
- A pilot plant for the electrocatalytic conversion of CO₂ into value added fuels



A production simulation pilot plant



An alkoxylation pilot plant



A pilot distillation system for UTSA



A lithium extraction demonstration plant



CONTACT US

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