

TECHNOLOGY HORIZONS

A publication by Zetron, the pilot plant specialists

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H2NANO MOBILE WATER TREATMENT PILOT PLANT DELIVERED BY ZETRON

Zetron recently delivered a cutting-edge, renewable energy, industrial wastewater treatment pilot plant module to H2nanO of Kitchener, ON. This innovative new process harnesses solar energy to treat contaminated water effectively and at a low cost. At the heart of this process is a proprietary and patented sunlight-activated treatment developed and produced by H2nanO at their facilities in Kitchener and Toronto, ON. The pilot plant module fabricated by Zetron included the processing, upgrading and process control equipment to enable on-site water treatment.

Zetron, working collaboratively with H2nanO's Lead Process Engineer Brad Wilson, P.Eng., was able to help H2nanO achieve one of the key project goals: to fit the pilot plant into a mobile platform for quick and easy transport

to and from client sites. The pilot plant module was designed and installed in an easy to transport shipping container. Another key goal was to provide a plug-and-play interface within the container to install a custom designed and fabricated treatment material processing unit after site deployment. The end result of this was skilful equipment selection and layout, as well as thoughtful pipe and controls routing.

Brad Wilson: "Our ideal operational window is governed by regional solar conditions and so our proposed delivery timeline was very tight and inflexible. Zetron's integrated engineering and manufacturing expertise allowed us to streamline the detailed design and fabrication process, mitigate schedule risks and deliver the pilot plant within the projected timeline - allowing us to have boots

on the ground in time to demonstrate our technology during the peak solar season. Zetron's craftsmanship was exceptional and led directly to a short and effective commissioning process, allowing us to achieve on-stream performance less than a week after accepting delivery."

Zac Young, COO: "Zetron was the ideal project partner from start to finish. Their expertise in pilot plant design is evident from engineering design to knowledge of best practices in deploying novel technology. Working with the Zetron team was a pleasure and elevated our capabilities to deliver an exceptional product to our customers. Their unique skillset is helping to bring built-in-Canada innovations to life." ■

"YOUR MODE OF OPERATION AND CONFIDENCE IN YOUR TEAM ABILITY WAS 'NO BRAG, JUST FACT.' REALLY NICE JOB GUYS!" STEVEN LUYTEN, PROJECT MANAGER, INEOS

INEOS IS COMMITTED TO THE RECYCLING OF PLASTIC WASTE

In the Fall 2019 edition of Technology Horizons, we noted that recycling projects are on the rise. An important development here is the recycling of plastic waste.

As one of the world's leading chemical companies, INEOS is actively working in this field of eliminating plastic waste and reuse of the resources. Zeton is proud to have contributed to the engineering and modular fabrication of INEOS' advanced polymer pilot plant located in Rosignano, Italy.

This pilot plant will help to develop and produce advanced products which will incorporate plastic waste diverted away from landfill or incineration. One example of the many products its polymer output will develop is lightweight car parts.

An important characteristic of this pilot plant, which is self-evident in the photograph, is that it is supplied as part of a fully-integrated process plant building, which is designed and constructed in a completely modular way. In addition to all the main process unit operations, it contains the same facilities that you would find in a traditional stick-built building, i.e. (fire) safety systems, HVAC, utility networks, overhead cranes, electrical room, etc.

Together with Ineos, Zeton committed to a very challenging schedule, where both parties

did their utmost to achieve success. Everything was perfectly on schedule, until final transportation unexpectedly challenged the team. By responding quickly, and with intensive collaboration between the INEOS and Zeton project teams, we were able to overcome this 'roadblock', and complete the project two weeks earlier than originally scheduled.

We are grateful for the positive feedback we received from the INEOS team, and for the experience of sharing a successful project together!

Steven Luyten, Project Manager:
"Initially, when we began to work together, I wondered if I was being naïve to be so confident in accepting what you said you would do 'as a matter of fact.' However; I soon realized that your mode of operation and confidence in your team ability was 'no brag, just fact.' Really nice job guys." ■



ZETON DELIVERS ITS FIRST PILOT PLANT TO TÜPRAŞ IN TURKEY

Zeton has delivered projects to more than 45 different countries from our offices in Canada and the Netherlands. This year, Zeton delivered its second pilot plant to Turkey, and our first to Turkish Petroleum Refineries Corporation (Tüpraş), which is Turkey's largest industrial enterprise with four refineries having a total of 30 million tons of crude oil processing capacity per annum. Tüpraş founded its own R&D center in 2010, and then built the R&D campus including R&D laboratories and a pilot plant building in 2014, all located within the İzmit Refinery.

Tüpraş R&D collaborated with Zeton for the design, construction and start-up of the new pilot plant, which is equipped with a distributed control system (DCS). The pilot plant is located at the R&D pilot plant building and is used for the hydroprocessing of several different feed stocks. The combination of Tüpraş R&D's requirements, Zeton's experience and the use of state-of-the-art unit operations and equipment, resulted in a highly versatile pilot plant. Different kinds of catalyst systems can be tested across a wide range of operating conditions to obtain valuable process data for R&D and refinery-related

projects to improve and optimize Tüpraş' hydroprocessing processes.

A team of experts from Zeton, who specifically focus on small scale projects, and from Tüpraş R&D, who specialize in pilot plant operation and testing, managed the corresponding studies during the project. The collaboration

between Tüpraş' project team and Zeton's project team ensured synergy and efficiency, and resulted in a well-executed project.

Ersen Ertaş, R&D Manager, Tüpraş: "Zeton's expertise and professional approach enabled the execution of a timely and successful pilot plant project." ■



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

ZETON STAFF ENJOY AN ACTIVE WEEKEND IN THE ARDENNES

A group of Zeton employees went to the Belgian Ardennes for an active weekend at the end of September. Amongst other activities, such as mountain biking and hiking, we went to the old quarry, Carrière, for the Survival Challenge! We had a great time at this impressive outdoor sports field. The many rock walls offered enough variation to test our climbing skills. For most, the fear of heights had to be suppressed! We were able to climb a net, climb a Via Ferrata route, and climb via rope ladders as well as a bush walk. Once we reached the top, it was time to go down again. Too bad the highest and fastest zip line (175 meters long and 65 meters high) was inoperative the day we were there! It was nice to see that everyone helped each other and worked well together during the challenge;

that's Team Spirit! By coaching and helping each other at times when it sometimes seemed difficult, we all succeeded

in completing this challenge. We enjoyed a safe and very pleasant, active weekend, with a lot of fun had by all. Highly recommended!



IN BRIEF

HIGHLIGHTING RECENT AND COMPLETED PROJECTS AND ENGINEERING STUDIES

- A fluidized bed reactor system for a petrochemical process
- A world scale petrochemical additive production plant
- A supercritical CO₂ R&D system
- A continuous polymerization pilot plant
- A pilot plant for PET polymer recycling
- An in-line oil blender
- A dual filtration skid
- A small batch reactor plant



An intermediate chemicals pilot plant (scale up)



An intermediate chemicals lab scale system (scale down)



An olefin polymerization pilot plant



A petrochemical industry pilot plant

SPECIAL STATEMENT

Despite the disruption and uncertainty caused by the COVID-19 pandemic, Zeton continues to operate.

We have implemented new procedures based on guidance from health authorities in Canada and The Netherlands to protect the health and safety of our employees, customers and suppliers. Zeton will continue working safely and diligently to support our business, now and after the pandemic. Please don't hesitate to contact us if you would like more information.



CONTACT US

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

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