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Let's talk:

Satisfied customers come back

again and again

thyssenkrupp Industrial Solutions has already built three fertilizer plants for the Hungarian fertilizer manufacturer Nitrogénművek Zrt - with great success. A fourth order for an ammonium nitrate plant has now also been successfully completed following a challenging engineering phase.

The third plant at the Pétfürdő site for the production of 1,150 tons of nitric acid per day was put into operation successfully the year before last.

Susanne Rieck, Senior Sales Manager, and Dr. Andreas Krake, Senior

Project Manager, played a major part in this project. In her role as sales manager, Susanne Rieck has built a very good relationship over many years with our “regular customer” Nitrogénművek and successfully acquired the last four orders for thyssenkrupp. Andreas Krake as project manager led the execution of the project. Insights spoke with Susanne Rieck, Andreas Krake and customer János Szilágyi from Nitrogénművek and gained interesting insights into the project.

We want to let our customer speak first. János Szilágyi was Chief Executive Officer of Nitrogénművek until December 31, 2018 and has been part of the board and advisor to the President since his retirement. He was kind enough to take the time to report on the project.

Szilágyi: Thank you very much. It is an honor for me to provide a testimonial for Uhde® technologies based on Nitrogénművek's experiences.

Nitrogénművek has invested a large amount over the last 4-5 years to renew/change a substantial part of its plants, and at the same time to increase capacities and improve efficiencies. Because of this, the company is currently able to produce half a million tons of ammonia, approximately one million tons of diluted nitric acid and one and a half million tons of calcium-ammonium-nitrate fertilizers annually. In addition to that, we have optimized our energy consumption, utilizing a large amount of steam that we had saved in our optimized fertilizer plants to produce half of the company's electricity demand in our new turbogenerator. Now we can produce more than 5000t/d CAN. It is a remarkable amount in the European market.

Among our new plants there are 4 important brand new ones using Uhde proprietary technology. We installed two 1500t/d capacity AN solution plants with the Uhde vacuum neutralizer process and one tkIS pugmill granulation fertilizer plant that can produce either 1960t/d granulated CAN-27 or 1550t/d AN-33,5. Finally, an 1150t/d capacity thyssenkrupp-licensed dual pressure diluted nitric acid plant was designed, built and commissioned in a very short time by tkIS in 2017.

In the case of the AN solution plants it was extremely important to find a process that could guarantee safety, reliability, low corrosion rates, low maintenance and no polluted water emissions.

With the Uhde® technology it is possible to clean the secondary vapor from ammonia and droplets of ammonium-nitrate to such a low nitrogen content - without using a special waste water cleaning unit - that the cleaned water can be sent directly to a creek where fish are living. This is thanks in part to the thoughtful co-design of the nitric acid absorber and neutralizer facilities.

We selected the Uhde process for granulation because you can produce alternatively granulated CAN or AN with high quality using the same equipment. So we did not have to buy two different plants for these two products. With other processes you can produce either granulated CAN or AN. In our tkIS granulation plants all environmental outputs meet the more and more rigorous requirements.

“There is no polluted effluent from the process, the dust and ammonia emission values decreased to 1-3 % of the prilling plant’s outputs. Our customers are happy with the quality of our products. In this process it is one of the biggest pugmill granulation units available.”

Wow, that does sound very good indeed. Let's talk specifically about the nitric acid plant. Mr. Krake, what services did thyssenkrupp provide for the project?

Krake: As part of the project we installed a new nitric acid plant on a brownfield site in an existing plant complex. Our contractual services covered the entire turnkey scope from engineering and procurement to commissioning.

How did the project go? Did everything work out as planned?

Krake: The project went very well. The team managed to carve out several months’ buffer on the contract schedule. With a planned project duration of 2.5 years that’s an enormous achievement.

When did the plant go into operation and is everything running as it should now?

Krake: During commissioning we had to partially dismantle and rework a central plant unit together with a major supplier. Despite these difficulties the plant was handed over to the customer on the scheduled completion date in June 2017.

In the past 2 years the plant has operated without any major disruptions.

Mr. Szilágyi. Customers often have a different perspective on projects. How do you see the course of the project? Was it a good decision to award the contracts to thyssenkrupp?

Szilágyi: Our experience confirms that the selection of Uhde® nitric acid technology was a good and justified decision, mainly because the process solutions are well thought out and tested. The burner, heat recovery train, absorption tower and cooler condenser designs seem to be really advantageous. For reasons of company balance sometimes we have to decrease the load of the plant, and in these conditions the specific energy consumption is better than in other processes.

It is important to harmonize the operation of different plants in order to have a good, flexible company material balance in respect of ammonia, acid, deliveries of raw material and final product as well as steam, electricity and cooling water balance in respect of energy recovery.

Mr. Krake, I'm sure you're glad to hear such praise from a customer. In your opinion, what particular factors contributed to the success of the project?

Krake: Working together in a geographically concentrated team was very helpful and ensured highly efficient project work from day one. Especially in the start phase we were able to place the first long-lead orders early and in parallel plan the project through within the team. The focused schedule we developed during this process helped us address the key issues as the project progressed.

Ms. Rieck, the customer has now chosen us for the third time. Did the results of the project vindicate that choice?

Rieck: Absolutely. We delivered an outstanding technology and the plant went into operation on schedule. During project execution the customer could see that we were doing everything in our power to bring the project to a successful conclusion, even if there were one or two stumbling blocks in between, as in many projects. Ultimately, the result counts, and the very positive feedback from the customer shows that we more than fulfilled their expectations. The project management together with the project team made a great contribution to this.

Mr. Szilágyi, what do you think was particularly important for this project? Did we meet your expectations?

Szilágyi: It's an advantage if the design and technical principles of the different plants follow the same patterns even if they were installed at different times. That's why we preferred to have thyssenkrupp as a contractor.

Mr. Krake, what did you personally learn from the project work?

Krake: For me it was very interesting to see a highly motivated team and a very goal-oriented customer working together to build a chemical plant in such a short time. As well as the technical aspects the administrative side of the project execution was extremely professional.

In addition to the usual project management processes, this also included setting up and running a local office and, last but not least, a targeted communications strategy.

Ms. Rieck, our good relationship with the customer has been mentioned several times now. What makes a good customer relationship?

Rieck: As well as outstanding technology backed up by many references, I think mutual trust and reliability, and acting as partners, are essential to a good customer relationship. You have to be able to listen and understand what customers want, what their motivation is and where their "stumbling blocks" and limits lie. And on this basis you can search for solutions together.

Another important point for me is that we are able to convince customers of our technical competence and experience, and this requires the efforts of the whole team. Another important point is fair and respectful interaction, like I said as partners.

Of course we also have to make the customer a competitive proposal - but I don't think we always have to be the cheapest as long as we can convince them with quality.

Mr. Szilágyi, how do you see the cooperation?

Szilágyi: I totally agree with Mrs Rieck. Nitrogenművek was convinced that tkIS was the right partner for us in executing these projects because of its scientific approach, very thorough technical knowledge and experience, and wide range of references in the different fertilizer processes. During execution of the different projects we had a very useful, good and correct cooperation from the beginning to the very end. Our and your colleagues worked together in a mutually helpful atmosphere and there are some who have been good friends ever since. Personally for me it was a really good cooperation, where we sometimes had different kinds of difficulties but both parties strove to find the correct and optimal solutions.

As I emphasized several times, we at Nitrogenművek are interested in good cooperation with tkIS, which is one of the global leading licensors in our and other sectors of industry, in order to get information on the latest possible improvements at an early stage. Hopefully tkIS can find a field here to test their new ideas.

Ms. Rieck, what were the highlights of the project for you?

Rieck: We addressed the challenges of the project intensively in advance, i.e. before signing the contract, whether it was the technological concept or, for example, the special requirements of construction in Hungary, or the required CE certification of the plant. This spared us unpleasant surprises and changes later on. We had a highly motivated team in Dortmund who were able to optimize the project in terms of schedule and costs. This allowed us to shorten the schedule considerably, even though unfortunately we were unable to hand over the plant to the customer ahead of schedule due to necessary repairs to a main unit.

Many of the experiences and improvements gained in this project can be transferred to other projects. This was demonstrated, for example, by the acquisition of similar projects for the Polish companies Grupa Azoty Pulawy in 2017 and Anwil this year.

Thank you for this interesting conversation and congratulations to the project team on their great execution of the project.

Read more about our nitric acid technology:

<https://www.thyssenkrupp-industrial-solutions.com/en/products-and-services/fertilizer-plants/nitrate-plants/nitric-acid-plants>



