

Indaver's project approach adds value to DOW turnaround



The core business of Dow Benelux B.V. in Terneuzen is the production of base chemicals and plastics. These are mainly semi-finished products, ultimately for application in industries including food, pharmaceuticals, cosmetics, transport and water treatment. The large-scale production site consists of various plants that Dow dismantles every so often to clean or maintain all the components as necessary. This operation is known as a turnaround and can take several weeks. Leon van Miert, Production Engineer, explains how important it is to collect large volume of complex waste flows that arise from this operation quickly, efficiently and safely, and then transport and process them.



'Crackers' need thorough inspection and maintenance

Indaver has been managing waste for Dow since 2005 and is responsible for the Total Waste Management of the hazardous waste. Due to those years spent working together, Indaver knows the complex range of waste substances inside out. "That know-how comes in very handy with a huge project like a turnaround", says Leon van Miert. Van Miert has been working at Dow for 30 years, and knows the site like the back of his hand. In his current role, van Miert is responsible for waste management at Dow. "The turnaround of the crackers implies that we shut down the plant in a relatively short time. After that, we conduct a very carefully controlled inspection of the plant, in which we implement improvements and clean and maintain the process components. The running of operations on the rest of the Dow site must not be disrupted. The crackers 'crack' naphtha at very high temperatures into smaller base chemicals such as ethylene. This process causes quite a lot of pollution on the walls, which it is a real challenge to clean up. Periodically, Dow schedules a turnaround for this plant. Although it lasted two months, it was two years in the planning, because around 2,000 extra subcontractors work on the Dow site during that turnaround. This requires a wide range of safety measures, extra infrastructure and facilities. About six months before the turnaround, the waste disposal partners are involved.

Sustainable solution due to ship transport and the proximity of Indaver

"After cleaning the pipelines, we are left with rinsing water that is contaminated with chemicals, oily substances and aromatic compounds", explains van Miert. Dow used to take away the waste water via vacuum

tankers but that was difficult in view of the large quantities, which required a lot of truck movements and administration. In another project, experience was acquired with taking away the waste substances via a ship; that was a turning point. After launching a tender, Indaver proposed to transport most of the rinsing water from the turnaround directly via ships to the waste disposal centres. The ships also serve as a buffer so that the huge volumes of rinsing water did not have to be stored on site. Dow also provided a direct pipeline from the crackers to the jetty for loading the ships with rinsing water during the cleaning. The preliminary study and experience in similar projects resulted in flexibility and convenience in deciding which was the right solution per waste flow. The more heavily contaminated rinsing water is transported by vacuum truck to Indaver IWS around the corner, where flexibility was very important due to the unpredictable character of the waste substances and volumes during a turnaround.

The polymer and coke substances leave the Dow site in container/vacuum trucks which Indaver rinses immediately afterwards on its site. Equipment like pumps and heat exchangers from the plant go to Indaver's Cleaning Yard for cleaning".

Safety first

"Precisely because this kind of turnaround project is so large and complex, the main focus is on safety", says van Miert. Not just because there are so many extra contractors present, but because the dismantling itself entails risks. These include unwanted fumes that can be released when opening the lines. This is why there are strict requirements and safety precautions and measures to protect the Dow workforce, subcontractors and the environment. For example, the ships used are equipped with vapour return systems and these are approved by Dow. The ship transport

replaces the more labour-intensive and risky actions to connect and disconnect the road tankers. We keep a very close eye on what leaves our site. It was a major challenge for Indaver to monitor, in addition to the regular waste administration, all the planning and administration of the ships, which is actually a separate specialist field. Yet everything went smoothly, safely and sustainably according to van Miert. Indaver's understanding of the chemical composition of the waste and its market knowledge enable it to assess the whole waste chain.

Half of our success is down to teamwork

"Indaver aims to understand every waste substance as thoroughly as possible in order to offer the right, most sustainable disposal solution. In order to obtain insight into the project and the waste flows that emanate from it, Project Manager Thomas Windels has visited our site on various occasions. He also looked at the production process with us, so as to come up with the correct analysis. Besides the correct administration, the personal contact, the specialist knowledge and the proximity of the Indaver plant are tremendously important for Dow", van Miert emphasises.

Personal contact, specialist knowledge and proximity of the Indaver plant are a plus

A turnaround is a big, complex operation, with maximum focus on safety