

Challenging project: DSM's NextGen sulfa plant at Chemelot

DSM FIBRE INTERMEDIATES (DFI) BUILT A NEW AMMONIUM SULFATE PLANT AT THE CHEMELOT SITE IN GELEEN, THE NETHERLANDS. FOR TEBODIN'S DUTCH OFFICE, IT WAS THE LARGEST EPCM PROJECT OF THE LAST 25 YEARS, AND ONE OF THE MOST CHALLENGING.



Chemelot is one of Western Europe's largest industrial sites, about 6,500 people work here. The next generation sulfa project took 1.4 million man-hours to complete and its scope is exceptional in Europe today. 'The old plant dated back to 1952 and was beyond repair', says DFI Project Director Mr. Rob Reinartz. 'After the decision to rebuild, the question was how to make the most of it. On a much smaller plot, we built a factory that produces high-quality ammonium sulfate, in higher quantities, with unique energy efficiency.'

Residual heat

Ammonium sulfate comes in granules shaped by crystallization. Most of the product serves as soil fertilizer, with grades of higher purity finding their way to other applications. The new plant is plotted right next to DSM's caprolactam plant, which produces the raw material for polyamide 6, and receives its uninterrupted waste

stream. Mr. Reinartz: 'The old plant was 3 kilometers away. It needed a steam supply of 50 tons an hour, about ten percent of the total use at Chemelot. By using the residual heat from the caprolactam process next door, we now save a lot of energy.'

Engineering challenge

The new plant is a state-of-the-art facility, with stainless steel structures, equipment, piping and sophisticated concrete technology to deal with the corrosive effects of ammonium sulfate. 'The main technical challenge was in the limited space available', says Tebodin Director Engineering Mr. Peter Janssen. 'The eight crystallizers, each 19 meters long and 7 meters in diameter, have been mounted vertically across several floors. A total volume of 9,000 m³ is in constant motion, which causes vibrations that demand exceptional strength in the building's construction.'

Great commitment

An integrated team of DSM technologists and Tebodin engineers started work on the conceptual and basic design in 2012. Tebodin Project Manager Mr. Danny Smeets: 'Technology and all of the equipment was made to unique specifications, applying everyone's knowledge and experience, including specialism of vendors.' Mr. Reinartz concludes: 'It was a difficult project. We wanted to achieve 99 percent availability and a long lifespan of safe operability. Everyone has shown great commitment and flexibility in the cooperation needed to reach that goal.' ■