Hitachi Zosen INOVA

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Leveraging Potential: Producing Biomethane from Sewage Gas

Sewage gas from the wastewater treatment unit at the Model AG paper mill in Niedergösgen, Switzerland, will in future be upgraded to biomethane to provide heat and mobility. The technology for this process will be supplied by Hitachi Zosen Inova BioMethan, one of the leading providers of gas upgrading and CO_2 separation systems.

The gas upgrading system is currently being manufactured in the workshop of Hitachi Zosen Inova BioMethan (HZI BioMethan) at its base in Zeven, Germany. It will in future be used to upgrade the sewage gas from the Model AG paper mill into biomethane. For this, HZI BioMethan will use a membrane-based gas permeation process which separates the CO_2 contained in the sewage gas from the methane.

Convincing Concept

The order to develop and construct the plant was placed by the Swiss energy services provider Energie 360°. Against the backdrop of a flourishing biomethane market, it will in future take the paper mill's sewage gas, use it to produce biomethane in the upgrading facility, and then place this on the heat and fuel markets.
In addition to CO_2 separation, this project also features sophisticated technology for capturing hydrogen sulfide. HZI BioMethan was able to set itself apart from other providers thanks to the economical plant concept it proposed and its expertise with interfaces. The Zeven-based firm designed the project with an external chemical-biological desulphurization process for undried biogas using pellet-based filtering material. Both the membrane module and desulphurization system have long lifetimes.

Cross-Process Experience

With many years' experience covering digester systems through to grid feed-in, HZI BioMethan also has a wealth of expertise with regard to process interfaces, which will be a significant advantage for the client when it comes to implementing this project. "We will be taking the adjacent facets into account from the outset," said Karsten Wünsche, CEO of HZI BioMethan. The raw gas production is upstream. The gas characteristics of the input streams vary considerably depending on whether it is a classic digester system, a wastewater treatment unit or landfill. "The corresponding design of the upgrading technology to ensure maximum methane yield requires sound engineering knowledge," explained Wünsche. This is also significant with regard to the downstream connection to the natural gas grid. "Given that we manufacture both upgrading and feed-in technology, we also have the relevant knowhow here. This means that specific features can already be incorporated in our gas upgrading projects when drawing up proposals."

Picture: Membrane Technology by HZI BioMethan

About Hitachi Zosen Inova BioMethan

Hitachi Zosen Inova BioMethan GmbH (HZI BioMethan) is one of the leading providers of gas upgrading systems, delivering its solutions with two processes for separating CO_2 from the biogas or flue gases.

The company was founded in spring 2015 as the result of an asset deal to acquire MT-BioMethan GmbH, one of the pioneers in the field of biomethane production through CO_2 separation and gas feed-in. HZI BioMethan combines its expertise with many years of practical experience in numerous reference projects across Europe. The company is part of the HZI Group, rounding out the latter's biological waste treatment portfolio.

Pressureless amine scrubbing is an efficient, heat-led process that makes sensible use of the waste heat from CHP facilities or gas boilers. HZI BioMethan also offers a three-stage pressure-driven process using membrane-based gas permeation. Both of these technologies deliver the highest degree of purity with minimal methane slip.

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