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HUBER TECHNOLOGY
WASTE WATER Solutions

Solar HUBER dryer stops rising costs for sludge disposal

The HUBER Sludge Turner SOLSTICE® makes solar drying a success

Due to the new regulations and legislation for sewage sludge, disposal costs have doubled for many sewage treatment plants or increased to far more than 100 € per ton original substance. The reason for the cost increase is that the standard solution for meeting the requirements of the new legislation is sludge incineration.

Incineration capacities are however unequally distributed and exploited to a large extent, and transport ways have become longer on many sites. Disposal costs can be reduced if the sludge volume is reduced through drying.

The Bavarian municipality Freystadt decided to build its own decentralized solution: a complete sludge treatment plant that processes wet thin sludge into dry granulate installed at the beginning of last year has since been operated fully automatically there. “Of course, we had to get familiar with the new technology in the beginning, but after a while we knew how everything works. Now, it takes us not more than one and a half hour per day to handle the complete sludge treatment on site”, said plant manager Johann Weihrich.

The sludge treatment plant consists of a screw press and a solar sewage sludge drying system. Since years, solar sewage sludge drying has been a recognized technology for producing dry grains from a partly sticky sludge cake, reducing the sludge volume to approximately a quarter at the same time. Solar sludge drying represents an economically efficient method if the disposal price is approx. 80 € per ton or higher – and there are hardly any operating costs. The low operating costs include low energy consumption and a very good climate balance.

On STP Freystadt, the installation of the solar sewage sludge drying plant resulted in a number of advantages: before the plant was built, contract dewatering companies emptied the sludge storage ponds at regular intervals. Emptying the ponds meant considerable efforts and operating expense: stirring the 8,000 m³ large sludge ponds for homogenisation, the load on the treatment stages due to the filtrate water, the effort necessary to regularly set up the mobile machines, and sludge removal and transport.

Stationary dewatering eliminates peak loads caused by the filtrate water, ensures that the dry granulate is pourable and not sticky so that sludge transport is clean and easy. Moreover, sludge volumes are significantly reduced: only 180 t/a have to be removed from the plant.

The example of STP Freystadt shows that a completely automated sludge treatment plant can be an economical solution even for smaller sites. HUBER SE could win the tender worked out by the engineering office Miller, Nuremberg. HUBER built the complete mechanical systems, had the structures erected and put the plant into operation – the complete plant from a single source, with all

The sludge treatment plant is a completely automated, low-maintenance system

units perfectly attuned to each other.

The thin sludge is homogenised in a supply tank of the ponds and pumped 350 m up to the sludge dewatering building where it is conditioned with the HUBER Inline Polymer Mixer IPM, a newly developed HUBER product. The mixer not only increases the dry residue at the outlet of the sludge dewatering system, it ensures also that outgassing in the sludge line is no problem for operation. The sludge is dewatered by the well-proven HUBER Screw Press Q-PRESS®. The dewatered sludge cake is discharged into the HUBER Screw Conveyor Ro8 T that transports the sludge into the greenhouse.

There, the HUBER Sludge Turner SOLSTICE® takes over, breaking up and continuously turning over the sludge while transporting it through the greenhouse. A climate control system in the greenhouse ensures that optimal drying results are achieved. The system relates the electrical energy consumption of the ventilators to the drying efficiency to decide whether it is economical to activate the ventilators. The nearby sports field, playing ground and a club house for motorbike friends do not have to fear odour annoyance. The continuous process avoids odour peaks. Due to the intensive turn-over of the sludge bed by the sludge turner and backmixing of dry granulate into the wet sewage sludge, odour-producing processes are prevented. To backmix the sludge, the sludge turner with its tools takes in the granulate at the end of the drying way and transports it back to drop it at a defined point.

The space on STP Freystadt is limited. The traffic areas required around the sludge treatment plant had to be kept as small as possible. As the SOLSTICE® returns the material, feeding of wet sludge and removal of dry granulate can take place on the same side so that only one access to the drying hall needs to be built. After the plant operators' decision to build the plant, they did not commission a contract dewaterer anymore. Due to the very good dewatering results and excellent performance of the solar dryer, it was however no problem to process within one year all the sludge that had accumulated over the year plus the freshly generated sludge.

Plant manager Johann Weihrich is very satisfied with his new plant: "It was the right decision. We have now a plant that works really well. Maintenance, process control, operation – the plant is designed to ensure that everything is smooth, easy and clean."

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