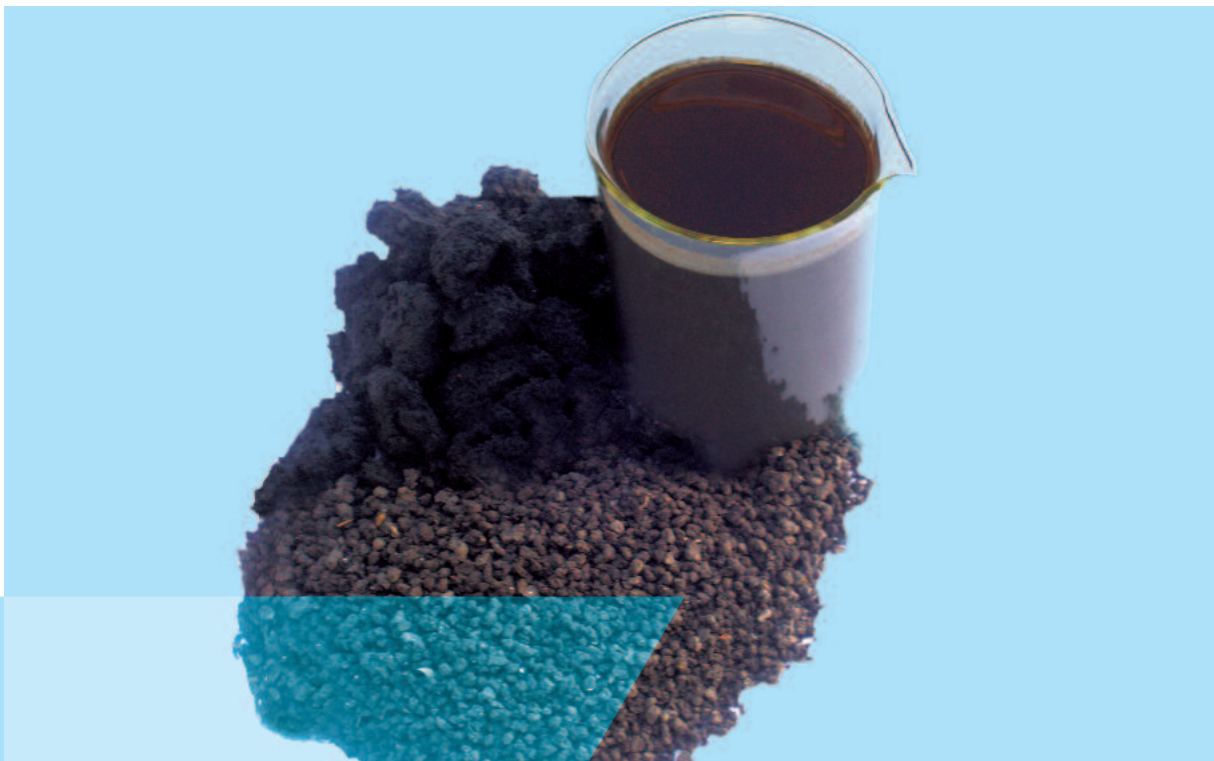


# HUBER Sludge Treatment



Screening – Thickening – Dewatering – Drying – Utilisation

... from one source

## ►► Sludge treatment

Sewage sludge is continuously generated on municipal and industrial wastewater treatment plants during the process of organic pollutant degradation. In the past years, the annual volume of municipal sewage exceeded 10 million tons dry substance in Europe alone, and the trend continues upward. Due to the very different rates of connection in the individual countries, with e.g. a rate of virtually 100 % in the EU member states, and therefore regionally very different sewage sludge volumes it is only understandable that there are controversial approaches as regards sludge disposal ways.

In some countries, due to new legislation and eco-political consideration, some disposal methods have been prohibited or at least restricted, such as landfilling of sewage sludge. For many states the recovery of materials contained within sewage sludge still plays an important role. This applies to both landscaping and sludge spreading on agricultural land.

The fertilization effect of sewage sludge and especially its phosphorus content is normally sufficient to cover the nutrients demand of typical agricultural land. On the other hand, there are a lot of countries where the agricultural application of sewage sludge is met with much scepticism due to its potential heavy metal pollution and content of organic pollutants, such as PFT. In these countries there has been a clear trend towards concepts for thermal sewage sludge treatment for some years already, partly combined with the approach to recover the phosphorus contained within sewage sludge.

Many of the decentralised concepts for thermal sewage sludge utilisation also provide for the sensible use of heat and avoid expensive sludge transports. Incineration of dried sludge means high disposal safety for operators. In addition, mono-incineration allows for optional phosphorus recovery from sewage sludge ash. Another factor in favour of incineration is the fact that it allows to recover the amount of energy consumed for sludge drying.

For an optimised energy balance, process steps upstream of the incineration plant must be designed as energy-saving as possible. Best case, the incineration of sewage sludge can show a positive energy balance and make an eco-friendly contribution to the generation of regenerative energy.

Against this political and economic background it is understandable that the sewage sludge disposal issue can be discussed quite controversially. Even if there is no generally accepted concept for future sewage sludge disposal existing presently, adequate sludge pre-treatment is required with all concepts described above.

A major pre-treatment step is to reduce the water content of the sludge. Sewage sludge generated on wastewater treatment plants typically shows a DS between 1 and 5% depending on where exactly it is generated. The average DS content of digested sludge is 4 %. This means that one cubic metre of digested sewage sludge contains 960 l, which would permanently have to be transported without prior dewatering. The major benefits of dewatering and drying are weight and volume reduction and the increased thermal value.

Consequently, the process chain that allows for later thermal utilisation of dried sewage sludge comprises the steps of prior screening, thickening and drying.

**Screening – thickening – dewatering – drying – utilisation – all from one source**



*Sewage sludge treatment on a municipal wastewater treatment plant*

## ➤➤ Sludge screening / process water filtration

### **STRAINPRESS® Sludgecleaner**

- Throughput capacity up to 100 m³/h
- Continuous pressurised foreign material separation
- No washwater needed
- Suitable for in-line installation
- With pneumatically regulated pressure cone
- Completely made of stainless steel



*STRAINPRESS® – Continuous pressurised foreign material separation*

## ➤➤ Sludge thickening

### **ROTAMAT® Disc Thickener RoS 2S**

- Throughput capacity up to 40 m<sup>3</sup>/h
- Two sizes available
- Simple principle of operation
- Minimised operator attendance
- High operational reliability
- Compact, totally enclosed design
- Accessible for full inspection
- Adjustable for varying degrees of thickening
- Minimum wash water consumption
- Low wash water pressure of only 3 bar
- Low solids load in filtrate



*Unique sludge thickener ROTAMAT® Disc Thickener RoS 2S*

### **ROTAMAT® Rotary Screw Thickener RoS 2**

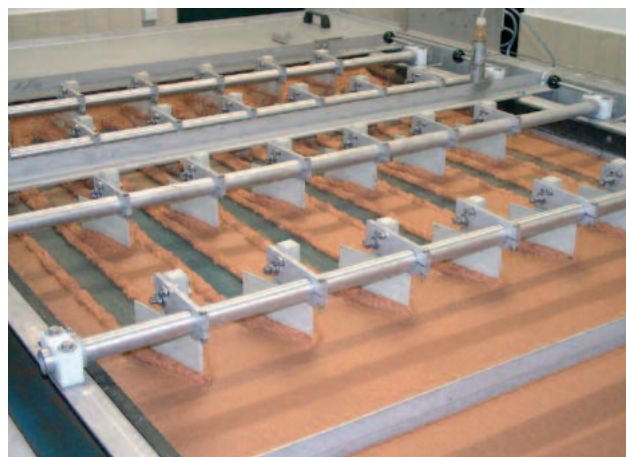
- Throughput capacity up to 110 m<sup>3</sup>/h
- Two sizes available
- High solids capacity
- Totally enclosed, odour-free design
- Completely made of stainless steel
- Low wash water consumption
- Low energy consumption



*ROTAMAT® Screw Thickener RoS 2 – exceptionally robust thickener*

### **HUBER Drainbelt DB**

- Throughput capacity up to 100 m<sup>3</sup>/h
- Four sizes available
- Low polymer consumption
- Minimum operating costs
- Exceptionally high thickening results
- Variable belt speed
- Low energy consumption



*HUBER Drainbelt – worldwide well-proven thickener*

## ➤➤ Sludge dewatering

### **HUBER Bogenpress BS**

Belt filter press

- Throughput capacity up to 1000 kg<sub>DR</sub>/h
- Three sizes available
- Versatile sludge press
- High efficiency (low polymer and power consumption)
- High capacity (due to extended pre-dewatering zone)
- Application-optimised design



*The HUBER Bogenpress can be combined with the Drainbelt unit to further increase capacity*

### **ROTAMAT® Screw Press RoS 3**

- Throughput capacity up to 500 kg<sub>DR</sub>/h
- Two sizes available
- Very robust design
- Especially suitable for industrial sludges
- Proven in hundreds of installations
- Virtually noiseless operation



*ROTAMAT® Screw Press RoS 3  
Specific power consumption < 10 kWh/t<sub>DR</sub>*

### **ROTAMAT® Screw Press RoS 3Q**

- Throughput capacity up to 500 kg<sub>DR</sub>/h
- Four sizes available
- High dewatering efficiency
- Low energy consumption
- Easy to operate
- Compact, enclosed design
- Optional mobile units
- Hundreds of installations worldwide



*ROTAMAT® Screw Press RoS 3Q – superior operational reliability*

## ➤➤ Sludge drying

### **HUBER Solar Active Dryer SRT**

- Suitable even for small sludge volumes from 1,000 t/a
- Sturdy design, well-proven technology, simple technical process
- Low primary energy consumption
- True backmixing of sludge for a perfect drying bed without any odour or dust
- For maximum flexibility sludge feeding and removal can take place at opposite ends or the same end, as requested.
- Modular design providing for the option of fully automatic sludge feeding and removal
- Optional use of exhaust heat to support solar drying



*Dewatered sewage sludge becomes dry granulate with the HUBER SRT system*

### **HUBER Belt Dryer BT**

- Water evaporation up to 3.3 t/h
- Low-dust high-efficiency drying
- Small exhaust air mass flow
- Utilisation of site-specific exhaust heat
- Simple design, easy maintenance
- Versatile sewage sludge dryer
- Conforms to EU directive ATEX
- Low maintenance requirements
- Automatic operation over 24 hours per day



*HUBER Belt Dryer BT for sewage sludge drying up to > 90 % DS*

## ➤➤ Thermal sewage sludge utilisation

### **HUBER sludge2energy system for sewage sludge utilisation**

- Decentralised thermal utilisation of sewage sludge
- Energy self-sufficient concept of drying and incineration
- State-of-the-art flue gas cleaning
- Long-term disposal safety and cost control
- Optional phosphorus recovery from sewage sludge ash



*Innovative concept of decentralised sludge utilisation by generation and use of thermal and electrical energy*

## HUBER SE

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