Case Study – Inegöl OSB
Sewage Sludge Drying

Background

Sewage sludge, a residual by-product from municipal and industrial wastewater treatment, presents significant handling and disposal challenges due to its high water content and variable composition. Municipal sludge is a mixture of organic, inorganic, and biological constituents, while industrial sludge in addition may include heavy metals or specific chemical residues. Mixed sludges often form complex matrices that complicate further processing.

Evaporation Technology

Drying Technology

High Viscosity Technology

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After mechanical and biological treatment, sludge is thickened and dewatered, achieving a dry solids (DS) content of typically 15–30%. However, this moisture level still poses difficulties for handling, transport, and disposal. Depending on composition and treatment, options include agricultural use, incineration for energy recovery, or landfill disposal – each requiring different dryness levels. Buss-SMS-Canzler addresses these challenges with tailored thin film drying solutions. Their technology reduces moisture content to the required level for safe and cost-efficient disposal, offering operational safety, environmental friendliness, and consistent performance.

Figure 1: Fully dried sludge 90% dry solid

Challenges

- **Variability of Sludge:** Composition changes with origin, treatment process, and seasonal factors, while operators require a consistent, dry product.
- **Sticky Phase Handling:** During drying, sludge becomes glue-like, complicating conventional drying. Buss-SMS-Canzler's patented lime phase measuring device handles perfectly the control of this crucial phase.
- **Operational Safety & Environment:** Minimising odour, dust emissions, and risk of dust explosions crucial for continuous and safe operation.

The Buss-SMS-Canzler Thin Film Dryer overcomes all these challenges by handling the sticky phase directly, providing flexible dryness control, and maintaining a low-odor, closed design.

Solutions

Working Principle of the SMS Thin Film Dryer

(fig. 2). The key features are:

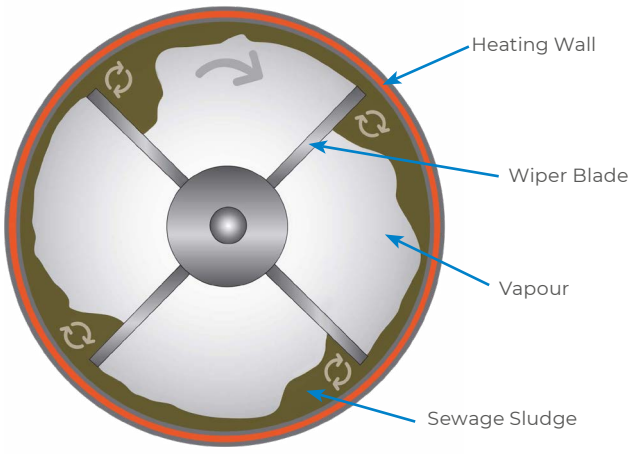

Figure 2: Working principle of a thin film dryer

- **Heating Media:** Saturated steam, thermal oil, hot water, etc. transfers heat efficiently.
- **Agitation & Wiping:** Rotating wiper blades are ensuring high evaporation rates.
- **Thin Film Advantages:** Continious safe, efficient and flexible operation

This technology enables reliable and safe pre-drying and full drying of various dewatered sewage sludges for further disposal or utilisation.

The Inegöl OSB Case

Figure 3: Top view of Inegöl OSB

The Case

Location: İnegöl, Türkiye

Customer: İnegöl Organized Industrial Zone (OSB)

Capacity: 160 tonnes dewatered sewage sludge per day

Solution: Installation of two Buss-SMS-Canzler Thin Film Dryers Type NDS

- ✓ Conversion of sewage sludge into a biofuel with a high calorific value
- ✓ Enabling fossil-fuel-free mono-combustion
- ✓ Sludge drying by recovered heat from sludge mono-incineration.

Process Highlights:

- ✓ Water Evaporation Rate: over 100 t/day
- ✓ Equipment: 2 × Thin Film Dryer Type NDS

Challenges Addressed:

- ✓ **Environmental Sustainability:** Reduction in sludge volume and weight, control of odour and dust emissions.
- ✓ **Operational Safety:** Secure, inert atmosphere without additional flu-gas and advanced safety systems prevent dust explosion hazards.
- ✓ **Adaptability:** Reliable operation despite seasonal variations in sludge composition.

This milestone reflects a significant advancement in sustainable sludge management for İnegöl OSB, improving disposal efficiency and reducing environmental impact.

»The integration of our second Buss-SMS-Canzler Thin Film Dryer has significantly increased our capacity and reinforces our commitment to sustainable sludge management.«

Sabahattin Fazlıoğlu, Regional Manager, Inegöl OSB

Conclusion

The İnegöl OSB installation demonstrates how the Buss-SMS-Canzler Thin Film Drying technology can transform complex, high-moisture sewage sludge into a consistent, usable fuel, achieving operational safety, environmental sustainability, and energy efficiency. This case illustrates the potential for scalable, adaptable sludge management solutions applicable to municipal and industrial wastewater treatment plants worldwide.

Energy efficient, safe & sustainable

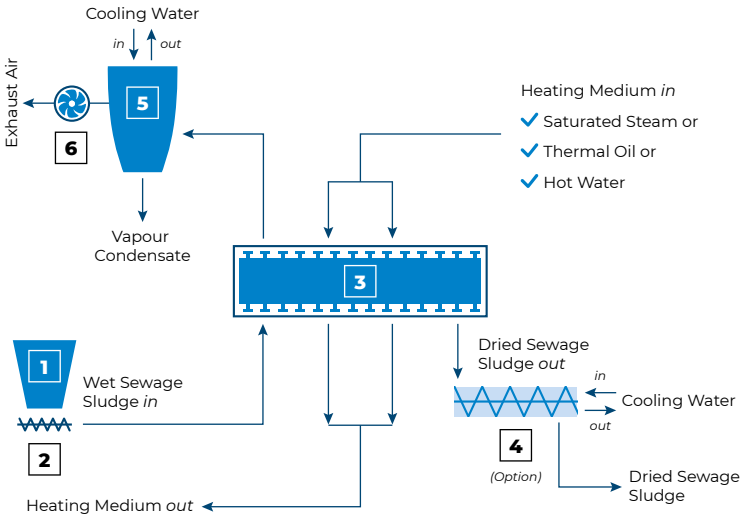

Figure 4: Thin film drying scheme

Exchange about your sewage sludge drying process with our expert in this field

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