HUBER Solutions for Sludge Treatment

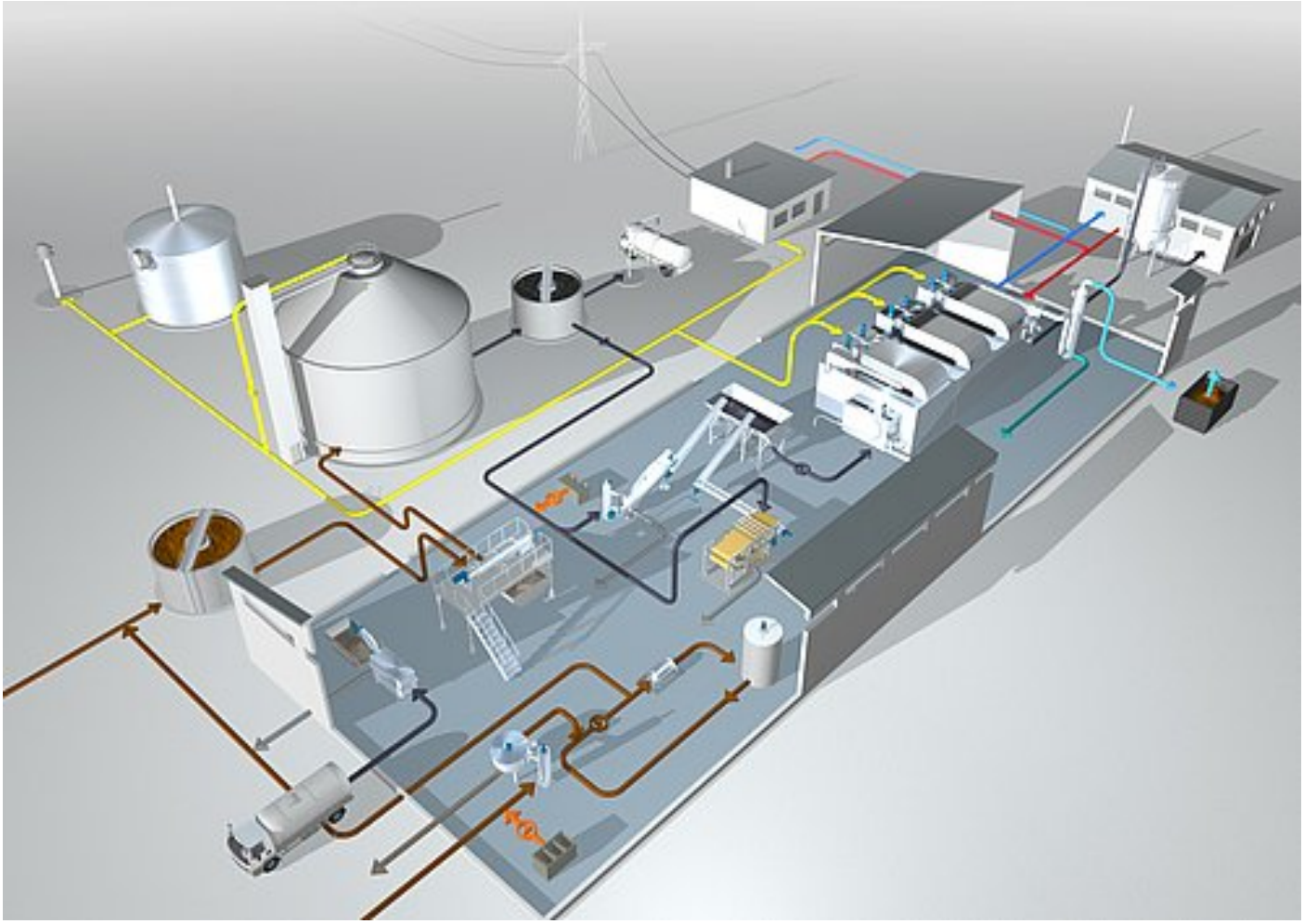
The better wastewater is treated, the more sludge is generated thereby. Primary sludge consists of solids removed from raw wastewater. Secondary sludge consists of biomass generated by biological treatment. Tertiary sludge is generated by advanced chemical/physical treatment.

Most important processes of sludge treatment include:

- Screening for removal of debris and other solids
- Thickening for reducing the sludge amount by concentrating solids
- Hygienizing for inactivation of pathogens
- Dewatering by mechanical water removal
- Drying by thermal water removal (evaporation)
- Incineration by thermal oxidation of organic solids

We offer highly efficient and comprehensive HUBER Solutions for sludge treatment, from mechanical pre-treatment with screens to sludge reuse.

Systems concept



Click on the image to get a detailed, interactive view with additional information and links.

Details

The main waste generated in a municipal waste water treatment plant is the wastewater sludge that is removed from mechanical, biological and chemical wastewater treatment processed.

The amount of sludge depends on the type of treatment, the connected population and population equivalents, and wastewater characteristics. Wastewater characteristics and specific sludge production vary from country to country and from region to region. There is even a difference between urban and rural areas. Sludge production figures range from 20 to 45 kg of dried solids per person per year.

There are several sludge characteristics that have a great influence on the costs of sludge treatment. The water content is very important as it determines the sludge volume and therefore feasibility and costs of transportation and disposal. The solids and water content of sludge depends on the type of sludge (e.g. primary sludge, waste activated sludge, chemical sludge) and the type and quality of its treatment (e.g. sludge digestion) and on the method of sludge thickening and dewatering.

The chemical composition of the sludge also depends on wastewater characteristics and the wastewater treatment method. Of particular importance is the content of heavy metals as their concentration is a limiting factor for land application of biosolids. Despite the fact that land application within the limits set by European biosolids regulation is not only a safe and beneficial reuse of valuable nutrients, there are politically motivated concerns endangering the long-term continuation of land application. The existence of endocrinic substances in biosolids is also an additional concern though these pharmaceutical substances are unlikely to be taken up and incorporated into plants.

European regulations specify that only waste with a volatile solids (organic) content of below 5% may be landfilled. This means the end of the sludge landfilling only the ash from sludge incineration plants may be landfilled. The combination of sludge drying and incineration is about energy neutral. Dried sludge has approximately the same thermal value as brown coal. If dried sludge is incinerated, the generated heat is sufficient for sludge drying.

HUBER offers a virtually complete chain of sludge treatment processes.

Photos