

Innovative energy-efficient sludge drying

WE TURN SLUDGE INTO EASILY MANAGEABLE GRANULES



Emission-free technology for sludge drying

Industrial waste often contains large amounts of water, especially waste from water treatment such as sewage sludge and biogas residues. Up to 80% of the material is water, which limits recycling and puts pressure on outlets and landfills. The valuable components of waste types such as sludge, biomass and residues are therefore lost.

Removing the water is a refinement that enables incineration, pyrolysis or other processing methods. With our closed dryer, we reduce the water content so much that the sludge is transformed into an easily manageable and dry granulate.

90% dry matter - 10% water

Sludge with more than 90% dry matter reduces the need for storage and transport. The amount of sludge sent to landfill is reduced and methane degassing is avoided. The dried sludge is stabilized after the drying process, allowing it to be stored safely for longer.

The dry sludge is a uniform and dust-free granulate in the same size as small wood pellets. The dried sludge has a high calorific value and, when burned or pyrolyzed, will provide thermal energy comparable to dry wood.



The water phase after drying is clear and contains only volatile substances such as ammonium. It has been documented that PFAS/PFOS remains in the dried sludge. This ensures that the substances can be handled correctly without the risk of release to the environment via the water.



Energy efficient and CO₂-free drying

Drying Matter dries at a low temperature in the range of 50-75 degrees, which offers several advantages:

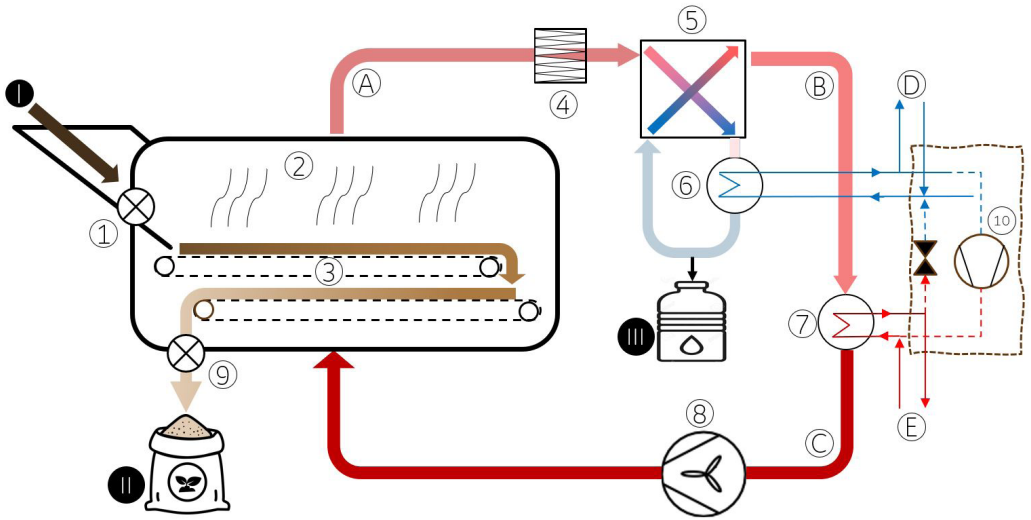
- The number of volatile substances in the condensate is minimized.
- The low temperature improves the possibility of utilizing waste heat and thus reduces consumption.
- We can use either heat pump technology, waste heat or a combination for drying.
- The heat pump converts 1 kWh of electrical energy into more than 4 kWh of thermal energy, utilizing both heat and cold. By using green electricity, the process can be carried out CO₂-free.
- The closed circuit and the use of a heat pump reduces electricity consumption.

Reliability

Our standard heat pump consists entirely of Danfoss components and utilizes oil-free compressors with magnetic bearings, making them virtually maintenance-free. At the same time, a refrigerant with low environmental impact is used. Danfoss has over 70,000 installations worldwide with this type of compressor. If desired, we can also supply other types of heat pumps.

Mobile plant hire

Drying Matter offers rental of mobile pilot plants for sludge drying so that the technology can be tested directly at your own facility. Our experienced operators handle the operation, enabling the customer to assess the simplicity of the installation, document performance and analyse their own sludge under realistic conditions. This only requires connection to electricity.



Process

- | | | |
|----|------------------------|---------|
| A. | Humid exhaust air | 45-55°C |
| B. | Cooled dry exhaust air | |
| C. | Warm drying air | 68-75°C |
| D. | Cooling water | 30/42°C |
| E. | Hot water | 80/60°C |

Product

- I. Wet sludge
- II. Dried sludge
- III. Water/condensate

Main components

- 1. Slitter for feeding
- 2. Sludge drier
- 3. Drier belts
- 4. Filters
- 5. Cross-flow heat exchanger
- 6. Condensing unit
- 7. Dry air heat exchanger
- 8. Ventilator
- 9. Auger for unloading
- 10. Heat pump (optional)



Model	Typical sludge drying capacity* [ton/day]	Dimensions (LxWxH) [m]	Weight [ton]
100	10	8.1 x 3.1 x 3.5	8.6
150	15	11.3 x 3.1 x 3.5	12.3
200	20	14.5 x 3.1 x 3.5	14.8
250	25	17.8 x 3.1 x 3.5	16.5
300	30	21.2 x 3.1 x 3.5	20.4
350	35	24.3 x 3.1 x 3.5	23.4
400	40	27.6 x 3.1 x 3.5	26.3
450	45	30.8 x 3.1 x 3.5	29.3
500	50	34.1 x 3.1 x 3.5	32.2

* From 75% to 15% water content

Green transition requires more than green power

Europe is rapidly replacing fossil fuels with electricity from renewable sources. But the energy demand is so high that it cannot be met by green power alone - we also need to use energy much more efficiently. Drying Matter's solution contributes to this transition by both reducing energy consumption and making it possible to electrify processes that are currently dependent on fossil fuels.



www.dryingmatter.com



Sandvedvej 59B | 4250 Fuglebjerg | Denmark
info@dryingmatter.com | +45 53 53 12 12