Profile

Anro is your competent partner for drying applications

we offer to our clients:

- feasibility studies and process development
- operation of plants at clients site
- turn-key plants
- main components for drying plants from own manufacturing
- laboratory and pilot tests
- toll drying

Sludge Drying

Anro Process Technology
example: sewage sludge drying

In a first step sewage sludge will be dewatered mechanically. Feed to the plant is by means of a slurry pump. The drying process takes place in three stages. After passing the third stage the dry product is discharged and transferred to a storage location.

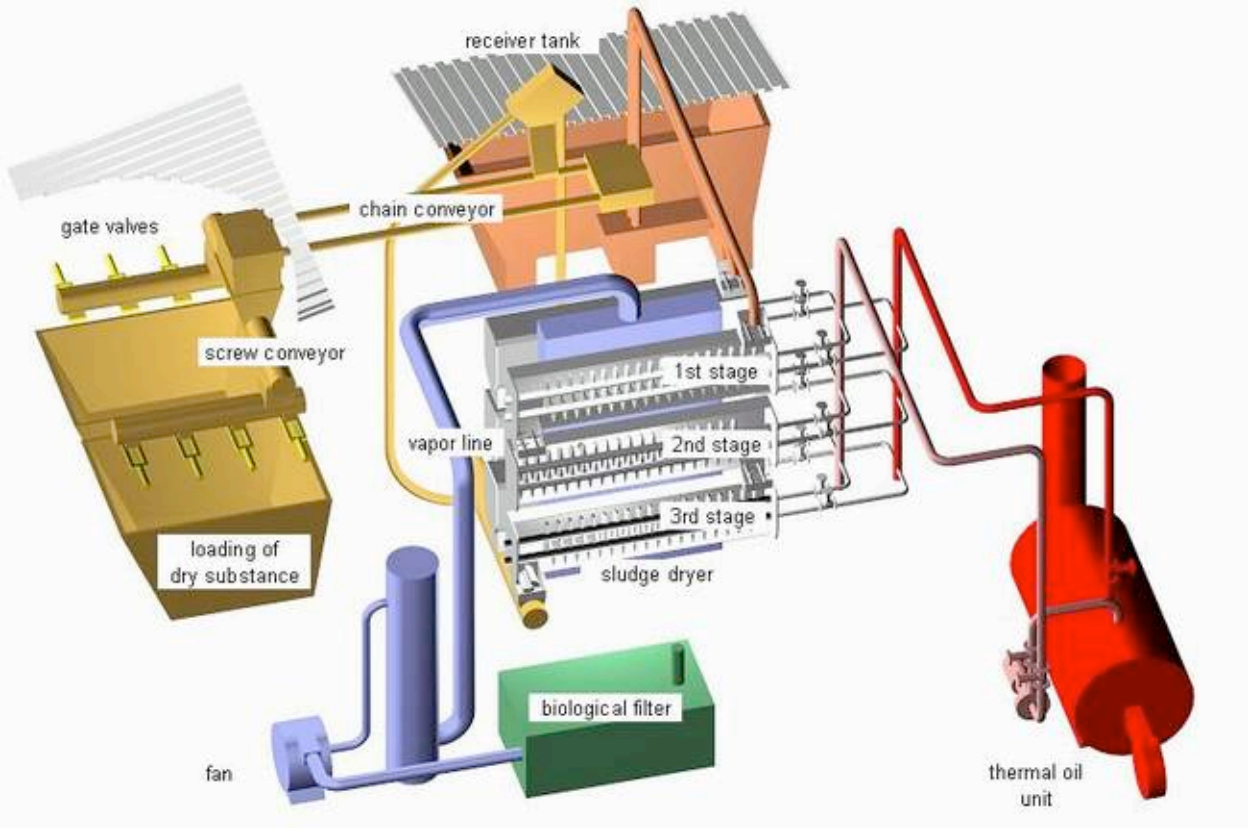
The vapors containing 95% steam are liquefied in a downstream condenser. Condensate is recycled to the feed of the sewage works.

Organic compounds will be decomposed in a biological filter.

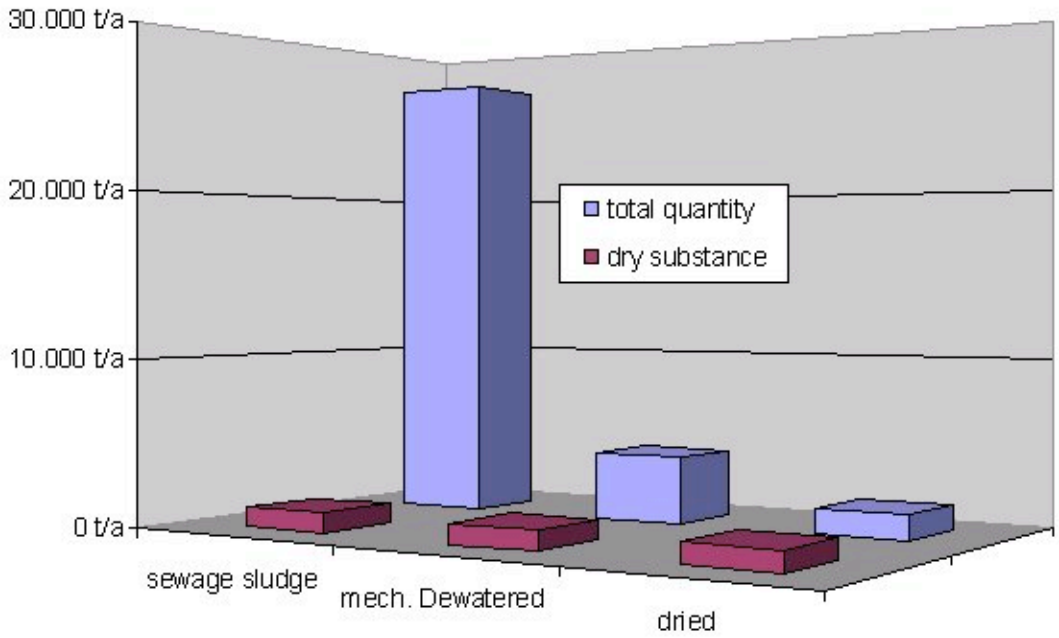
The dryer modules are heated by a thermal oil unit. The vessel can be heated either by natural gas, sludge gas or fuel oil.

Dryer plant and hot oil unit are placed in a drain tray for protection of the environment.

process scheme of a sewage slurry drying plant:



Sewage Sludge Drying



Features

Characteristic of ANRO Drying Process

operation

- continuous process
- option for heat recovery
- easy overcoming of glue phase
- gentle drying - partly or complete
- no backmixing with dry product
- fast start and shutdown of the plant
- option for intermediate shutdown (e.g. during weekends)

environment

- no annoyance by odor
- efficient heat transfer
- no significant dust formation
- no special precautions against fire
- independent from weather conditions
- hygienic dry sludge

costs

- low manpower requirement
- simple and rough technique, high availability
- little area demand (< 100 sqft per module)
- option for saving of flocculating agent

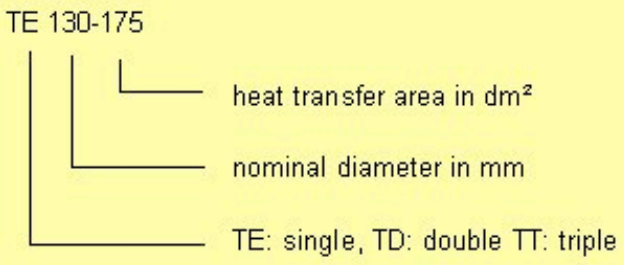
Standard Dryers

type	area A (m^2)	height H (mm)	diameter di (mm)	length L (mm)
TE 80-63	0.63	250	84	700
TE 130-175	1.75	400	135	1,300
TE 260-580	5.80	660	266	2,000
TE 350-1050	10.50	1,035	350	3,000
TE 500-2200	22.00	1,250	510	4,200
TD 80-125	1.25	500	84	700
TD 130-350	3.50	800	135	1,300
TD 260-1160	11.60	1,320	266	2,000
TD 350-2100	21.00	2,070	350	3,000
TD 500-4400	44.00	2,500	510	4,200
TT 80-180	1.80	750	84	700
TT 130-530	5.30	1,200	135	1,300
TT 260-1740	17.40	1,980	266	2,000
TT 350-3150	31.50	3,105	350	3,000
TT 500-6500	65.00	3,750	510	4,200

comment:

Dryer types TE are containing one twin screw, types TD and TT are modules with two or three screw dryers - on top of each other.

The first number behind the type indicates the diameter, the number behind the hyphen indicates the heat transfer area of the screw dryer.



Applications

ANRO-Plants are used for the following Applications:

sewage and sewage treatment	○ sewage sludge drying in municipal sewage plants ○ sewage sludge drying in industrial sewage plants ○ sludge drying in pulp and paper industry ○ iron sludge from water treatment
anorganic chemistry	○ metall sludge drying ○ metal hydroxide sludge ○ glass sludge ○ alkali sludge ○ anorganic residue ○ recycling of anorganic products
organic chemistry and polymer-chemistry	○ drying of organic intermeiates ○ drying of polymers ○ removal of monomers ○ removal of solvents
varnish- and clourant-chemistry	○ water removal from varnish sludge ○ solvent removal from varnish- and colorant sludge
metal and ceramic working industry	○ metall- and glass-grinding sludge ○ lapping sludge

- finish sludge
- aluminium oxide sludge
- silicon sludge from microchip production
- drying of galvanic sludge