

Thermal conversion of sewage sludge



Pilot plant

The technology is designed for processing of sewage sludge after treatment plants which is kept on the filtration margins (silt maps) for a long time. The sludge is similar to the peat according to its physical and chemical properties. The chemical formula of the sludge is $C_{54}H_{212}O_{82}N_8S_7$.

The stages of the technology:

- production of fuel granules with a diameter of 10...15 mm;
- drying of granules to a moisture content of 25...35%;
- thermal conversion of granules by «oxidation pyrolysis» at a temperature of 500–800 °C.

The stage of implementation of the technology: a pilot plant has been devised and a conversion of sludge granules has been effected.



Silt



Ash

The conversion products:

- the flammable gas with a calorific value of 5.4–6.9 MJ/m³; the gas output is of 0.8...1.2 m³/kg;
- an ash with output of 35...42% of the dry weight of the fuel;
- condensate, pH≥9.

During the process a mass of mud is lowered by a factor equal to 6...8 times. The combustible gas is used for the production of heat or electricity in gas-power plants.

The ash can be used as an ingredient for the production of building materials.

The technology contains elements of «know-how» and can serve as a guide for the creation of industrial line for the processing and recovery of sewage sludge.