

FARM BIOGAS FACILITY

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In Kazakhstan, according to the statistics are more than 149,830 farms. In addition, in rural areas private courtyards have individual farms, which are collected a large volume of organic animal waste, poultry, plant growing.

Accumulated organic wastes pollute and degrade the environment: create unfavorable views about the economy and in rural areas; spread an unpleasant smell; pollute underground water, which impairs the health of people, as in rural areas using water mostly from the well; generate methane in the atmosphere and thereby enhances the greenhouse effect.

A promising way to dispose of organic waste is biogas technology and installation. Processing and recycling of organic waste in biogas plants at the same time solve the problem of agricultural chemistry, environment and energy, as biogas plants produce biogas energy fuel and high-quality organic fertilizer.

Today in the world are designed and operate a variety of individual, private and industrial biogas plants.

In Kazakhstan there are several biogas plants. On Lugovoy horse farm in Zhambyl region operates industrial biogas facility, and LLP "Hamburg", located in Zhuvaly area, set the German farm biogas facility with a working volume of the reactor 250m³.

Individual farmers and biogas facilities have not received mass application in Kazakhstan. Therefore, at this time, a huge mass of organic waste farms is not processed, they are scattered in the fields. The main reasons are as follows: no domestic biogas facilities and stably functioning farm biogas facilities; from farms do not require the processing of organic waste, so the easiest way to take them to the fields; shortcomings of the existing (German, Russian and other) farm biogas facilities.

Existing farm biogas plants have the following common faults: the reactor volume is large and therefore the high cost; volume of the reactor is often not match the capabilities of the economy; a large energy consumption for mixing and supporting temperature of the organic matter in the reactor; cleaning of the reactor is difficult and requires interruption of the biogas plant; Overall and integrity of design makes it difficult to transport and change its location.

In this regard, in TarSU M.Kh. Dulati since 2008 in the department of "Mechanics and Engineering" conducted research on the development of farm biogas facility. There are obtained 8 innovative patents of RK on biogas facilities, published more than 15 scientific articles, made 4 biogas plants and laboratory experimental studies. Currently, work is underway to introduce farm biogas facility modular design.

Compared with existing analogues innovativeness of the proposed device is as follows: modular design allows you to create a biogas facility with the capacity of farms and gives you the opportunity to increase the working reactor of volume with increasing power farms; ability to operate a biogas facility at the same time in the discrete and continuous modes; low energy consumption for mixing and supporting temperature of the organic matter in the reactor; cleaning of the reactor unit without stopping the biogas facility; simplicity of design, manufacture, installation and operation; possibility of creating a farm biogas facility for remote and mobile farms.