TECHNOLOGIES
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GIG & NEW TECHNOLOGIES

Granulation of sewage sludge

Granulation technology focused on the production of fertilizers

Technology description

Sewage sludge is legally waste. Wastewater treatment plants incur costs associated with their disposal or collection by specialized entities, as sludge cannot be stored due to its flammable properties. A partial solution to this problem is technologies for processing sludge into compost. However, such a product cannot be transported over long distances and its spreading is difficult. The presented technology leads to the obtaining of the whole range of products – organic, mineral-organic fertilizers or soil conditioners – through combination of sewage sludge with refining components and bringing the mixture into a solid granulate with a grain size of 1-6 mm. The obtained products are adapted to being spread by spreaders and seeders.

The production process is two-stage. The first stage includes sludge dewatering processes in centrifuges (yield about 22% of dry matter), preparing the charge in the mixer and redirecting it to the granulator by means of belt conveyor, where granules with a dry matter content of approx. 40-45% are obtained. Then the granules are directed to the second stage of the technological line, where in the belt drier, at a temperature of 120-140 ^{o}C, the dry matter content in the granules increases to approx. 75%. The granules after drying are temporarily stored in a silo in order to be cooled down prior to being packed into plastic bags or big-bags.

DEPARTMENT OF WATER PROTECTION

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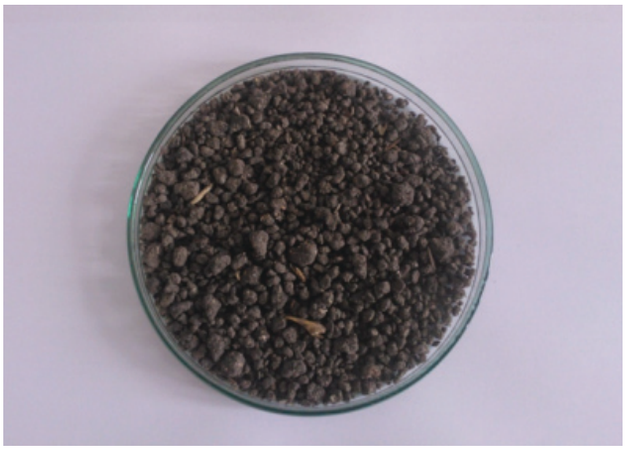

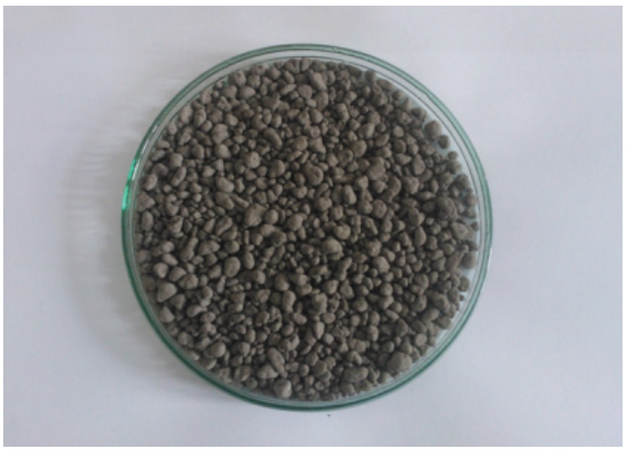

The advantages of the technology

The granulation technology developed by Department of Water Protection GIG enables the production of a fertilizer that is devoid of intense odour, has a durable consistency and is adapted to being spread using typical devices. The technology enables the creation of any mix and any consistency, providing a product that can be packaged and adapted to any distribution channel. The process is economically efficient and the installation can be scaled to provide the output require by the investor. The obtained product is characterized by good properties required especially in agriculture and land regeneration. High content of organic matter positively affects the processes of formation of humus in the soil, the products are also characterized by deacidification properties and the so-called micro-water retention in soil.

Application

The product is widely used on the market, especially in agriculture and land regeneration. The technology also gives investors the opportunity to generate revenue from the collection of sediment, and from the sale of the finished product. Such technology of fertilizer granules production is part of the circular economy idea, since as a part of waste production a product of high quality and content of key components such as nitrogen, phosphorus, potassium, magnesium or calcium is created.

Among the potential recipients of the presented technology, one should mention the fertilizer sector, the water supply sector, forestry, nursery, and in the agriculture sector, vegetable growing, greenhouse cultivation, fruit growing and ornamental plants.

GŁÓWNY INSTYTUT GÓRNICTWA