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Modern methods of industrial waste utilization in terms of Japanese waste-processing plant

Nowadays, there is about 1 t of garbage per each inhabitant of our planet annually; that is not taking into consideration the worn and broken cars.

Thus, the problem of waste processing is quite a topical one on all the developed countries. To know how to process waste properly along with the development of new branch of industry is the most expedient variant to solve the problem.

Waste-burning plant in the municipal district of Kusiro, Japan, is the example of such a facility. Waste is processed here by means of a combined method involving a gasification furnace, waste incinerator, and fusing furnace.

Gas-purification technologies make it possible to eliminate maximally dioxins and other poisonous substances. Heat generated from waste burning is used; high-temperature vapour is generated as well. Vapour turbine is driven with the generation of electric power.

Waste-processing system is as follows: domestic household waste from four settlements of the municipal district is brought by rubbish trucks. Waste is unloaded from rubbish trucks into storage bins. Large combustible waste is processed preliminarily by crushing being supplied then into a storage bin.

Waste is gasified and burnt; further, ash is fused. The generated combustible gas is sent into the upper part of a furnace for burning and fusing. Noncombustible particulate materials contained in the waste, including metals, are extracted along with the sand from the lower part of a furnace.

With the help of a conveyor, noncombustible particulate materials are sent for separation where there is a dissociation of iron, aluminum and other matters with their following storage at a special-purpose site.

Currently, waste burning is highlighted as a method to generate new type of energy – the energy of the 21st century. In such a way, the plant implements the principle of cyclic circulation of the resources by means of collecting and processing valuable resources being used secondly.

Moreover, fused ash remained from the burning is cooled rapidly in a burning and fusing furnace; next, water granulation slag is produced. Such slag is widely used in the construction industry as a sand-substituting material.