

**СЕКЦІЯ 5. МОДЕЛЮВАННЯ РОБОЧИХ ПРОЦЕСІВ В
ТЕПЛОТЕХНОЛОГІЧНОМУ, ЕНЕРГЕТИЧНОМУ
ОБЛАДНАННІ ТА ПРОБЛЕМИ ЕНЕРГОЗБЕРЕЖЕННЯ**

**ENERGOECOLOGICAL UTILIZATION OF SEWAGE SLUDGE IN
CEMENT PRODUCTION**

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Accumulation of a great amount of sewage sludge complicates work of treatment facilities (processing expenditures are up to 50% of total consumption of treatment facilities). Unlike other waste amount of sewage sludge cannot be reduced due to change of economical and social policy in the society.

The existent methods for sewage sludge processing are reduced to sewage of sludge volume and change of their structure for the subsequent application. Due to a great amount of heavy metals, an obnoxious odour, probable helminth infection, sewage sludge requires an additional processing, which is not always technologically possible or economically sound.

The technology developed makes it possible to utilize sewage sludge as mineral addition in cement production, practically, without after-treatment.

To calculate natural gas saving, a rotary calciner used in cement production by wet-mix method with efficiency 75 t/h and size 5x185m. was chosen. Sewage sludge with minimum amount of combustible (9,28 MJ/kg) also was taken for calculation. The result of the calculation of sewage sludge as an additive – inert material showed that due to the exceeding amount of silicon in silt, the additive of sewage sludge is limited up to 6,14% (up to 9827kg/h). Saving of natural gas used in the rotary calciner will be about 3,34% (up to 8,7 m³ per 1 tonne of cement).

Introduction of the technology makes it possible to reduce a risk of further contamination of soil, ground water and underground waters and to better the ecological situation and social-hygienic conditions of population residence near treatment facilities and sewage sludge sites.

In addition, the utilization technology makes it possible to lower cement cost due to saving of energy and material resources and to reduce expenditures on sewage sludge storage.