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ANAHTAR KELİMELEER

- ✓ Solar dryer
- ✓ Conduction
- ✓ Convection
- ✓ Radiation
- ✓ Sustainable

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TEZ ÖZETİ

In this study, improvements made to rise the efficiency of the solar dryer to reduce the moisture content of the sludge are discussed. Aim of this research is to diminish the water content of the sludge with a sustainable, cost-effective method. In this system, convection, conduction, and radiation processes are used together as heat transfer methods to transmit solar energy to the sludge. As a result of the improvements made in the design of the solar dryer, the efficiency increased from 20% to 28% for WWTP.sludge, from 18% to 31% in paint sludge, and from 6% to 13% in marble sludge, according to the amount of water evaporated from the unit area.

TEZ SONUÇLARININ UYGULAMA ALANLARI

According to the studies, it has been determined that solar drying systems are both environmentally friendly and less CO2 emission compared to thermal drying systems. It is emphasized that solar drying systems will minimize greenhouse gas emissions and contribute to the clean development mechanism within the framework of the Kyoto protocol.Environmental researchers in sludge treatment processes have examined the carbon footprint and life cycle from an environmental or energy perspective, also its analysis is very important in sludge management methods with reliable quality standards. In addition,the amount of energy consumed for each drying of sludge is determined. The energy spends per kilogram of waste sludge, paint, and marble sludges are 157,14kWh, 128,57kwh, and 71,428kWh respectively

YAYINLAR

Amin, Z., Salihoğlu, N.K. 2020. Assesment of waste sludge changes during solar drying. Environmental Engineering and Management Journal, 19 (11): 2049-2058.