

Microwave Drying of Plant Residuals

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Context

Drinking water treatment plants provide potable water through a variety of processes and treatments. During the processing or treatment of the water, the plants remove contaminants, particularly dissolved solids, that are unhealthy or undesirable for consumption, which become waste streams or plant residuals. These residuals contain high water content and must be further processed by sedimentation or evaporation before they are ultimately disposed, recycled, or reclaimed. Sedimentation and evaporation tanks, pools, and ponds increase the size of water treatment plants and add to the water treatment plant's overhead costs.

Summary

EPA inventors Darren Lytle and Mallikarjuna Nadagouda's "Microwave Drying of Plant Residuals," will help water treatment plants reduce their carbon footprint. This technology replaces energy intensive processing steps at the end stages of a water treatment plant's production process with lower system energy demand steps. Specifically, deploying this technology to dry the sludge and liquid wastes created in drinking water processing means energy and cost requirements are reduced as compared to traditional oven drying methodologies. Additional benefits include a possible reduction in plant footprint and expediting materials preparation for recycling and reclamation. Together, these benefits mean water treatment plants will become more efficient and eco-friendlier, and better able to meet the challenges of sustainable water processing.

This technology could be easily applied in other production facilities where by-products with high water content are generated and must be further processed for use or disposal.

Potential Applications

- Water Purification
- Food Production
- Livestock and Poultry Production

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