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PRE-TREATMENTS AIMED AT INCREASING THE BIODEGRADABILITY OF COSMETIC INDUSTRIAL WASTE

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Highlights

- The enhancement of biodegradability of cosmetic industrial waste was investigated
- The performances of different physic-chemical pre-treatments were compared
- The increase of soluble COD was employed as reference parameter
- Best results were achieved from thermo-alkaline pre-treatment
- Methane yield increased of 50% after pre-treatments reaching 0.14 Nm³/kg_{VS}

Abstract

This work investigated physic-chemical pre-treatments aimed at improving anaerobic digestion (AD) of cosmetic industrial waste produced by a plant belonging to L'Oréal Group. A mixture designed according to relative abundances of waste was considered: sludge from internal wastewater treatment plant (54%-wt), residues of shampoo/conditioner (31%-wt), mascara sludge (13%-wt), food waste (2%-wt). The mixture had 80% VS/TS and COD equal to 1240 mg O₂/g_{VS}; soluble fraction of COD was 22%. Investigated pre-treatments were: chemical, thermal, sonication

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