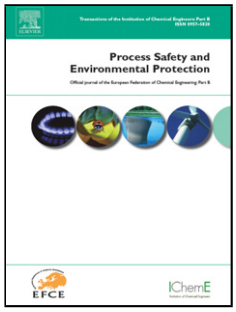


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PII: S0957-5820(18)30428-2
DOI: https://doi.org/10.1016/j.psep.2018.07.001
Reference: PSEP 1442

To appear in: *Process Safety and Environment Protection*

Received date: 27-3-2018
Revised date: 11-6-2018
Accepted date: 3-7-2018

Please cite this article as: Demichelis, Francesca, Fiore, Silvia, Onofrio, Maurizio, Pre-treatments aimed at increasing the biodegradability of cosmetic industrial waste.Process Safety and Environment Protection https://doi.org/10.1016/j.psep.2018.07.001

# 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 $Nm^3/kg_{VS}$

**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 $O_2/g_{VS;}$ soluble fraction of COD was 22%. Investigated pre-treatments were: chemical, thermal, sonication