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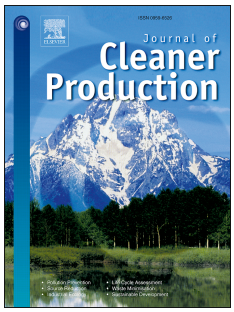

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PII: S0959-6526(16)31965-5

DOI: 10.1016/j.jclepro.2016.11.113

Reference: JCLP 8502

To appear in: *Journal of Cleaner Production*

Received Date: 7 June 2016

Revised Date: 31 October 2016

Accepted Date: 18 November 2016

Please cite this article as: Zhang H, Chen X, Wang X, Qiang X, Li X, Li M, A salt-free pickling chrome tanning approach using a novel sulphonic aromatic acid structure, *Journal of Cleaner Production* (2016), doi: 10.1016/j.jclepro.2016.11.113.

A salt-free pickling chrome tanning approach using a novel sulphonic aromatic acid structure

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Abstract

Large discharge of chromium and chloride is a severe pollution source in conventional leather-making industry, which hinders the sustainable development of leather industry and affects human life greatly. Aiming at minimizing the emissions of chromium and chloride, novel materials rich in sulfonic acid group were synthesized and optimized in salt-free pickling and less chrome tanning process. The results showed that, the novel method would improve the chromium absorption and distribution in crust leather from 71.6% to 98.6%, in comparison with conventional pickling chrome tanning, and the concentration of residual chromium in spent liquor was decreased to 45mg/L. The SEM indicated that the resulting leather treated with novel salt-free pickling showed clean pores and well-dispersed fibrils. Further experiment proved this novel salt-free pickling and less chrome tanning method is feasible in terms of organoleptic and physical mechanical properties. The financial assessment showed that the novel method is 46.9% cheaper than conventional approach. This novel pickling chrome tanning method can successfully solve the

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