

Accepted Manuscript

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PII: S1383-5866(18)31337-6
DOI: <https://doi.org/10.1016/j.seppur.2018.07.049>
Reference: SEPPUR 14780

To appear in: *Separation and Purification Technology*

Received Date: 19 April 2018
Revised Date: 17 July 2018
Accepted Date: 19 July 2018

Please cite this article as: S. Yang, W. Li, H. Zhang, Y. Wen, Y. Ni, Treatment of paper mill wastewater using a composite inorganic coagulant prepared from steel mill waste pickling liquor, *Separation and Purification Technology* (2018), doi: <https://doi.org/10.1016/j.seppur.2018.07.049>

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coagulant prepared from steel mill waste pickling liquor

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Abstract:

In this study, a waste pickling liquor from a steel mill, which is rich in iron and acid, was used as the main raw material to prepare a composite coagulant: polymeric ferric aluminum sulfate chloride (PFASC). The as-prepared PFASC was used, together with PAM, for the tertiary treatment of papermaking wastewater to decrease its COD and Chroma. The Results from FT-IR and XRD of PFASC, supported the conclusion that polymeric ferric aluminum hydroxide hydrates compounds/complexes are formed in the synthesized PFASC. When applied to a waste water sample from a paper mill, PFASC, together PAM, leads to decreases in COD and Chroma by 65.3 % and 71.2 %, respectively (initial pH 7.5, 1 ml/L PFASC, 1.0 ppm PAM). The technology has been implemented at a paper mill, and the obtained results are consistent with those from the laboratory.

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