

International Conference on

# Industrial Chemistry

June 27-28, 2016 New Orleans, Louisiana, USA

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Vhahangwele Masindi, Mugeru W Gitari, Hlanganani Tutu and Marinda DeBeer

<sup>1</sup>University of Venda, South Africa<sup>2</sup>University of the Witwatersrand, South Africa<sup>3</sup>CSIR-Building Science and Technology, South Africa<sup>4</sup>CSIR-National Centre for Nano-Structured Materials, South Africa

The feasibility of using vibratory ball milled South African bentonite clay for neutralisation and attenuation of inorganic contaminants from acidic and metalliferous mine effluents has been evaluated. Treatment of acid mine drainage (AMD) with bentonite clay was done using batch laboratory assays. Parameters optimised included contact time, adsorbent dosage and adsorbate concentration. Ball milled bentonite clay was mixed with simulated AMD at specific solid: liquid (S/L) ratios and equilibrated on a table shaker. Contact of AMD with bentonite clay led to an increase in pH and a significant reduction in concentrations of metal species. At constant agitation time of 30 min, the pH increased with the increase in dosage of bentonite clay. Removal of  $Mn^{2+}$ ,  $Al^{3+}$ , and  $Fe^{2+}$