

DEGRADATION OF SYNTHETIC ORGANIC DYES IN SOLUTION BY FERRATE – HYPOCHLORITE OR CALCIUM HYPOCHLORITE

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ABSTRACT

This study investigated the use of ferrate – hypochlorite solution or solid $\text{Ca}(\text{OCl})_2$ as treatment options to remove color and COD from solutions of the synthetic organic dyes: *Reactive blue 19*, *Allura red* and *Reactive black 5*. It was found that doses around 1000 ppm $\text{Ca}(\text{OCl})_2$ had color removal efficiencies around 90 % for all the dyes after 15 minutes reaction time; this treatment had a COD removal efficiency of 97 % for azo dye *Allura red*. The ferrate – hypochlorite (0.06 mM - <400 ppm) treatment resulted in a 50% color removal for *Reactive blue 19* dye after 1 hour reaction time. The COD removal of *Reactive blue 19* dye was improved from 40% to 84% when the ferrate – hypochlorite solution was used.

Keywords: Ferrate, Synthetic Organic Dyes, Hypochlorite, COD Removal.

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