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# THE PEROXYMONOCARBONATE ANIONS AS BLEACHING AGENTS. Part 2. MECHANICAL BRIGHTENING AND EFFECTS OF METAL I

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## Abstract

The peroxymonocarbonate mono-anion ( $\text{HCO}_4^-$ ) is generated in solution from bicarbonate anions ( $\text{HCO}_3^-$ ) and hydrogen peroxide ( $\text{H}_2\text{O}_2$ ). The mono-anion is basic with a  $pK_a$  of ca. 10 and as such would start dissociating to the di-anion ( $\text{CO}_4^{2-}$ ) at high pH. The mono-anion should demonstrate electrophilic properties, while the di-anion should demonstrate nucleophilic properties. The reactions of  $\text{HCO}_4^-$  were presented in this paper using model compounds (LMCs) and chemical pulps. Some evidence was also presented for the reactions with LMCs in the pH range of 8.8 to 9.5. Results are now being used to explain pulp brightening, where nucleophilic reactions were observed. Hydrogen peroxide in the  $\text{HCO}_3^-$  solutions was significant on some occasions, and Fe catalyzed