is acidic and heavily polluted with aluminium.

E2-30 Selective reduction of bromobenzoic acids by 5,10,15,20-tetraphenylporphyrinatoiron(III) chloride

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The electrochemical reduction of organohalides is a kinetically slow process, which results in large overpotentials. However, electrochemically generated nucleophiles can rapidly reduce many organohalides. Metalloporphyrins have been known to be an excellent family of catalytic substances in this regard. An

appropriate catalyst is added to the electrochemical cell or, alternatively, the catalyst is deposited on the electrode surface as a thin layer.

Although benzoic acid, and its 2-bromo, 3-bromo and 4-bromo derivatives show electrochemical activity at bare glassy carbon electrodes, only benzoic acid exhibits a well defined two-step reduction peak together with an oxidation peak between O V and - 1.0 V vs. SCE. The current of the first reduction peak of benzoic acid and that of the 4-bromo derivative are enhanced at the glassy carbon electrode coated with 5,10,15 20-tetraphenyl - porphyrinatoiron (III) chloride [Fe(III)TPPCl] showing the electrocatalytic behaviour of metalloporphyrins. Nevertheless, the reduction of the 3-bromo benzoic acid is inhibited by the Fe(III)TPPCl coated electrode showing the selective catalytic reduction of the 4-bromo derivative over the 3-bromo derivative. Surprisingly, the electrochemical behaviour of 2-bromobenzoic acid is not affected by the Fe(III)TPPCl coated electrode.