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# Electrocatalytic Generation of Homogeneous and Heterogeneous Hydroxyl Radicals for Cold Mineralization of Anti-cancer Drug Imatinib

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## Abstract

The effective removal of anti-cancer drug imatinib (IMA) from water was explored by electrochemical advanced oxidation processes electro-Fenton (EF) and anodic oxidation (AO-H<sub>2</sub>O<sub>2</sub>) using different kinds of anode material: Pt, DSA (Ti/RuO<sub>2</sub>-IrO<sub>2</sub>), BDD and sub-stoichiometric titanium oxide (Ti<sub>4</sub>O<sub>7</sub>) and carbon felt cathode. IMA was then destroyed by hydroxyl radicals ( $\bullet$ OH) generated in the system. A series of comparison experiments including oxidative degradation kinetics of IMA, total organic carbon (TOC) removal and mineralization efficiency were conducted at ambient temperature. In both cases, DSA and Pt anodes were less effective for the anodic oxidation and

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