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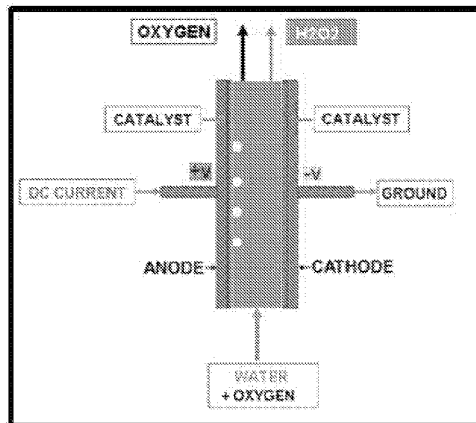
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(54) Title: REGULATION OF ON-SITE ELECTROCHEMICAL GENERATION OF HYDROGEN PEROXIDE FOR ULTRAVIO-
LET ADVANCED OXIDATION PROCESS CONTROL

FIG. 1A



Reaction Condition 1:

Anode: $2\text{H}_2\text{O} \rightarrow \text{O}_2 + 4\text{H}^+ + 4\text{e}^-$
Cathode: $\text{O}_2 + 2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2\text{O}_2$

$E_{\text{ox}}^0 = -1.23\text{V}$ (Oxygen Generation)
 $E_{\text{red}}^0 = +0.682\text{V}$ (Oxygen Consumption)
 $E_{\text{cell}}^0 = -0.548\text{V}$

Sufficient voltage for O₂ generation, sufficient O₂ for H₂O₂ generation

(57) Abstract: A water treatment system comprises an actinic radiation reactor, an electrochemical cell configured to produce hydrogen peroxide and having an outlet in fluid communication between a source of electrolyte and the actinic radiation reactor, and a source of oxygen in communication with an inlet of the electrochemical cell.

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