

**Detection and Monitoring of Corrosion
in Supercritical Water by Electrochemical Probe**

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Supercritical water oxidation is a promising and very effective method for the oxidation of organic wastes. Its high solubility for organic compounds and its special physical properties result in a key advantage over existing processes like incineration.

However, during destruction by SCWO, hazardous wastes can be oxidized to acidic products. Such acidic conditions may result in significant corrosion of the process unit and, in the context of the development of scaled-up systems; corrosion may ultimately be the deciding factor in the commercial application of this technology.

Nevertheless, the corrosion rate was evaluated from only mass loss experiments because the accurate electrochemical sensors suitable for use in high temperature and high-pressure environments have not been developed. The sealing, insulating and contamination of electrodes or probes were major problems to solve. If they were easily achieved, could remarkably improve our understanding of supercritical water oxidation processes.

The present study is concerned with the use of electrochemical probe to detect and monitor the initiation and propagation of corrosion of metals in sub- or supercritical water systems.