

Supercritical Water Oxidation of Organic Tissue

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Incineration of contaminated human tissue from hospital wastes faces serious public complains due to the fact that hospitals usually located. Supercritical water oxidation (SCWO) has been proven to be a powerful technology to eliminate a wide range of organic wastes. SCWO is therefore a promising alternative with high decomposition rates and no noxious fumes such as carbon monoxide.

In this work SCWO have been tested to treat chicken meat as model material for human tissue. The system consists of a semi-batch reactor where the chicken meat was loaded initial into. As oxidant hydrogen peroxide and air were used, fed into the reactor through a high pressure liquid pump respectively a gas booster. The operation temperatures were between 400 and 480°C with pressures of about 300 bar.

The comparison between air and hydrogen peroxide as oxidant showed that H₂O₂ has a significant advantage for the oxidation through building strong radicals during decomposition. Thus the obtained efficiencies for H₂O₂ were better than those calculated for air. The possibility for scaling up the process was also evaluated.