



DEHALOGENATION OF ORGANOHALOGEN-CONTAINING COMPOUNDS

Abstract of the Disclosure

Enzymatic dehalogenation of undesirable nitrogen-free organohalogen compounds is carried out by adding a dehalogenase to an aqueous composition comprising a nitrogen-free organohalogen compound and a nitrogen-containing cationic polymer. The enzymatic dehalogenation of the nitrogen-free organohalogen compound is achieved without any substantial effect upon the nitrogen-free organohalogen compound. The dehalogenation method may be carried out via continuous, batch, or semi-continuous processes.

The composition is especially useful as a paper wet strengthening formulation, and is useful in commercial papermaking processes. The resulting paper product comprises a residue of a microorganism.

Preferably the enzyme is obtained from a biocatalyst, still more preferably from a microorganism. Batch-enrichment of a culture of a dehalogenase-containing microorganism provides a composition capable of substantially eliminating the presence of nitrogen-free organohalogen compounds, which are considered to be pollutants. Cell concentrations of greater than 5×10^7 cells/ml are provided.