

# An Experimental Study on Capability of High Pressure Submerged Waterjets to Degrade Pollutant

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In recent years, groundwater has been contaminated by organic compounds with the development of agricultural and industrial technology. There are some pollution cleaning technologies for these contamination. But they have some problems of such as cost and efficiency. In this study, the capability of cavitation induced by waterjets to degrade oxalic acid under high ambient pressures of up to 3 MPa was investigated. First, the attachment of waterjets nozzle was improved to prevent the nozzle failure at experiment. Cooling system was also improved to shorten time taken for experiment. Then, since an experimental system was improved, repeatability of results of Furuta (2007)<sup>3)</sup> was examined. In the experiment, effects of initial concentration of hydrogen peroxide, diving pressure and ambient pressure on degradation of oxalic acid were investigated. It was found that the improvement of the experiment system does not affect the degradation of oxalic acid. It was also found that hydrogen peroxide is effective in degradation of oxalic acid with cavitation induced by waterjets, and that the effects of initial concentration of hydrogen peroxide on degradation of oxalic acid are small. The degradation rate of oxalic acid with waterjets increases with the driving pressure while it decreases with the ambient pressure.