

Research Note

## Consideration of the Wet Oxidation Method Operation Condition for Reducing Volume and Cesium Concentration of Forestry Biomass

Shigeki HARADA\*, Mitsunori YANAGISAWA, and Nobuto TAKAHASHI

Department of Environmental Sciences, Miyagi University  
(2-2-1 Hatadate, Taihaku-ku, Sendai, Miyagi 982-0215, Japan)

### Summary

The strength of the wet oxidation method using the sodium hypochlorite in a fully-mixed system used in this study has already been clarified that the method is safe (no emission of gaseous cesium is occurred during oxidation, thus, 100% cesium budget was obtained) and effective in reduction of both volume (more than 50%) and cesium concentration (more than 50%) of forestry biomass. However, we did not apply the method to forestry biomass of big varieties including their cesium concentrations, sizes and degrees of solidity (flexibility). In this report, we performed wet oxidation experiments using four types of forestry biomass to clarify the suitable operation conditions aiming to utilize this method for on-site forestry decontamination measures. Based on the results, we also knew the mechanism of reduction of volume and cesium concentration. Finally, we confirmed the feasibility of the method based on the actual volume of the leaves fallen at the existing forestry area at the northern part of Miyagi Prefecture, Japan.

**Key Words:** Wet oxidation, Cesium decontamination, Sodium hypochlorite, Volume reduction, Cesium concentration reduction

---