

1. 題目

Bioprocessing and bioleaching of CCA-treated wood waste as alternative disposal strategies

2. 発表者

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3. 要旨

The disposal of CCA-treated wood waste is growing problem worldwide due to public concern and scientific awareness about the release of toxic CCA components in current disposal methods. Most CCA-treated wood wastes are currently sent to landfills and wood fuel facilities for energy generation by incineration. However, both landfills and incineration have significant problems with respect to environmental concerns. Direct landfills have problem related to the contamination of soil and possibly groundwater by CCA chemical leached from CCA-treated wood waste. The disposal of CCA-treated wood via incineration is also problematic due to the emission of high levels of arsine gas and dioxins in combustion environments and leaching of CCA metals from incineration ash on disposal in landfills. Economic, regulatory and environmental pressures against current disposal methods stimulate the development of safe disposal-end management strategies, the development of alternative disposal methods, and the minimization of CCA-treated wood waste's generation. The generation of CCA-treated wood waste can be minimized by simply using wood treated with CCA alternatives that do not contain arsenic and chromium. Several CCA alternatives such as ammoniacal copper quats (ACQ) and copper azole (CUAZ) that have been standardized by the wood treatment industry to be as effective as CCA for certain applications. Options for disposal-end management include disposal of CCA-treated wood waste within lined landfills, capturing arsine gas and dioxins emitted during incineration, and safe disposal for incineration ash. Alternative disposal methods explored include bioprocessing and bioleaching technologies. Bioprocessing method is being developed to reduce the volume of treated wood wastes from landfill disposal. Bioleaching method is being developed to recover CCA components from spent treated wood by biological extraction in order to alleviate contamination concerns related to current

disposal methods. These alternative disposal methods offer one approach to CCA-treated wood waste management under certain conditions. No alternative disposal methods has been readily adopted due to the inherent costs and lack of means to handle, transport, sort, and process this waste material. Nevertheless, it is important to continue to investigate and develop new methods to remediate CCA-treated wood so that this technology can be readily transferred into the marketplace in the event that landfill and incineration restrictions are imposed in the near future.