

Potential Concerns and Impacts of CCA-Treated Wood for the Waste-to-Energy Industry

Timothy Townsend

Department of Environmental Engineering Sciences
University of Florida, Gainesville, Florida

Helena Solo-Gabriele

Department of Civil, Architectural and Environmental Engineering
University of Miami, Coral Gables, Florida

INTRODUCTION

An issue that has received much attention in the U.S. in recent years, especially in Florida, is the impact of CCA-treated wood on human health and the environment (Decker et al. 2002; Gordon et al. 2002), including risks faced as a result of discarded CCA-treated wood in the solid waste stream (Townsend et al. 2001; Townsend et al. 2003). CCA-treated wood is preserved with copper, chromium and arsenic. All of the metals have toxic impacts at high exposures; it is arsenic however, which has raised the greatest concern (it is more hazardous at lower concentrations than the other CCA constituents). CCA-treated wood often becomes mixed with other wood from construction and demolition (C&D) debris (Tolaymat et al. 2000). Mixed C&D debris wood is either landfilled along with the rest of the C&D debris stream (e.g. concrete, gypsum drywall) or it is separated and processed for a variety of recycling markets.

A major market for processed wood from C&D debris recycling operations is fuel in combustion facilities. As will be discussed later, the presence of CCA-treated wood in combustion systems can have several potential negative impacts. For a system designed and permitted to combust only clean wood debris, the CCA-treated wood should ideally be removed prior to combustion. However, the identification and segregation of CCA-treated wood from untreated wood can be a challenge. CCA-treated wood that has been separated from the rest of the waste stream must still be disposed of properly. At the current time, however, no commercially viable recycling markets for the material exist. Combustion in waste-to-energy

(WTE) facilities or some type of designated combustion operation has been proposed by some as perhaps the best available solution for managing discarded CCA-treated wood.

This paper explores issues and concerns surrounding CCA-treated wood as related to the WTE industry. Background information on the subject, including an update of the current regulatory status of CCA-treated wood, is reviewed. The magnitude of the CCA-treated wood waste stream, both now and in the future, is explored. Potential regulatory and environmental impacts on ash quality and air emissions are discussed. Since recycling options are very limited for CCA-treated wood at the present time and because of concerns from landfilling large volumes of this material, combustion facilities may play an important role in the future management of this waste stream.

CCA-TREATED WOOD BASICS

Wood products are often "treated" with a chemical preservative to retard the process of decay in the environment. Many wood species, including those used predominantly in the construction industry, require preservative treatment if they are used outdoors, especially in warm and wet environments such as Florida. Several types of wood preservatives have been developed, including oil-borne preservatives such as creosote and pentachlorophenol, and water-borne preservatives such as chromated copper arsenate (CCA). Treated wood products are used to construct items such as fences, decks, docks, and play-sets and are required