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Characteristics and Environmental Fate of Mercury in Municipal Waste Combustor Ash Before and After Implementation of the "Maximum Achievable Control Technology" Air Standards

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Abstract

Mercury emissions from waste-to-energy facilities have been a source of public concern for more than ten years following release in the early 1990s of the EPA's inventory of anthropogenic sources of mercury that listed MWCs as a significant source of mercury air emissions. Since 1990, source reduction, product reformulation, and increasingly effective battery recycling programs reduced mercury in trash by about 90%, according to the EPA. Pollution control equipment on waste-to-energy plants thereafter remove greater than 90% of the remaining mercury in the waste stream that is used as a fuel to generate power.[1] The use of mercury by U.S. manufacturers will decline even further due to the virtual elimination of mercury from alkaline batteries and aggressive recycling and product substitution at hospitals, homes, and businesses.

The Clean Air Act regulations promulgated in 1995 under the Maximum Available Control Technology standards have ensured that mercury emissions from waste-to-energy plants nationwide represent less than *3%* of the U.S. inventory of man-made mercury sources, according to EPA[2], (or less than 1% of mercury emissions from all sources). Furthermore, health risk assessments completed over the past several years for new and existing waste-to-energy plants consistently reveal that the levels of mercury emissions result in exposures which are 100 times less than the threshold health effects standard established by federal and state regulatory agencies.

Nonetheless, certain environmentalists and critics claim that the significant reduction in mercury air emissions has resulted in a transformation of the metal into the ash. In other words, the questions posed is whether what is not now going up the stack is instead finding its way into the ash. This paper answers that question with a resounding "no." Based on an analysis of test data, mercury in MWC ash has not increased despite a greater than 90% reduction in mercury emissions.

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[1]EPA Fact Sheet, *Final Air Regulations for Municipal Waste Combustors* (10/31/95); EPA memorandum, Summary of National Emission Estimates for Municipal Waste Combustion, (09/30/00).

[2]Bureau of National Affairs, *Daily Environment Report* (10/31/95)