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Recycling of municipal incinerator fly ash by electric arc furnaces of steel mini mills

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The objective of this work was to introduce an innovative recycling method for municipal incinerator fly ash (MIFA) by full-scale melting in electric arc furnaces (EAFs) of steel mini mills all over the world. MIFA including the fraction known as the reaction products is considered as a hazardous waste because it consists of trace heavy metals (e.g., Pb) and maybe dioxins/furans. Presently, MIFA in Taiwan is first treated by cement solidification and followed by land-filling. Melting MIFA by EAFs in different steel mini mills had been tested and proven to be an innovative way to treat and recycle MIFA. Full-scale test results have shown that this treatment technology has many advantages over others such as: (1) 40-60% of lime materials contained in MIFA can be re-utilized for steel production; (2) molten MIFA would become slag useful for several applications; (3) no new waste is derived from this treatment; and (4) employment of existing EAFs instead of building new melting plants for the treatment of MIFA. Moreover, zero landfill of MIFA could be achievable by the practice of this innovative recycling technology.

Biography

Gordon C C Yang received his PhD from University of California, Berkeley, California, USA in 1983. After that, he worked in the United States for five years before he worked for Industrial Technology Research Institute in Taiwan. Since August 1991, he has begun to teach at National Sun Yat-Sen University (NSYSU), Kaohsiung, Taiwan. He became a full Professor in 1994 and also severed as the Director, Institute of Environmental Engineering, NSYSU for three years starting from August 1997. During 1998-2003, he served as the Editor, *Journal of Hazardous Materials*. Currently, he is the Director (also the Founding Director), Center for Emerging Contaminants Research, NSYSU.

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