

9441.1990(03)

OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE

FEB 13 1990

MEMORANDUM

SUBJECT: Recycling of Electric Arc Furnace Dust (K061) as an
Ingredient in the Manufacture of Cement

FROM: Sylvia K. Lowrance, Director
Office of Solid Waste

TO: Robert L. Duprey, Director
Hazardous Waste Management Division
Region VIII

This responds to your December 6, 1989, memorandum requesting a regulatory determination regarding the use of K061 electric arc furnace (EAF) dust as an ingredient in the manufacture of cement. Included with your memorandum was a November 17, 1989, letter from Mr. Stephen Wistar of Ferrous American Company, which claims that the EAF dust used in such a manner is excluded from the definition of solid waste (and, therefore, not subject to RCRA) under 40 CFR 261.2(e). In your memorandum you do not specifically address the status of the EAF dust, but rather state that such use of K061 waste may be legitimate recycling subject to regulation under 40 CFR 261.6(a) and 266.20(b) and you seek our approval of this view. Several members of my staff also met with Mr. Wistar on December 21, 1989 to discuss his plans to "recycle" K061 wastes. The following is our evaluation of the pertinent issues you should consider in making the case-specific determination.

Mr. Wistar's claim that the K061 waste is not subject to RCRA under the exclusion at 40 CFR 261.2(e) is not supported by any information we have seen. Cement is considered to be a product that is typically applied to the land (although this is a rebuttable presumption), and therefore the EAF dust is a solid waste (and a hazardous waste -- K061) under 40 CFR 261.2(e)(2)(i). This determination does not, however, address the legitimacy of the use of K061 waste as an ingredient to

produce cement.

To determine whether the processing of a specific waste is legitimate recycling or treatment, one must consider, among other things, the fate of the constituents in the waste as they are processed. In other words, do the constituents actually play a part in the manufacture of the cement (i.e., are they legitimately being used), or are they being treated/disposed by incorporation into a product? Particular focus should be given to the fate of hazardous constituents in the waste that are incorporated into a product (it would be contrary to the intent of RCRA regulation if regulatory determinations are made solely on the use/reuse of nonhazardous constituents also contained in a hazardous waste).

In evaluating the fate of the (hazardous) constituents in the waste, one should use the fate of constituents in an analogous raw material as a baseline. Insofar as the constituents (and their concentrations) in the waste and the raw material are similar, the processing may be legitimate recycling. However, if the waste contains hazardous constituents not present in the analogous raw material (or hazardous constituents at significantly higher concentrations than in the analogous raw material) that serve no purpose in the manufacture of the product, the process would appear to constitute treatment/disposal rather than legitimate recycling. Also, where incorporation of the waste results in detriment to the quality of the end product, the procedure would appear to constitute treatment/disposal. Finally, it should be noted that the fact that a material can be inserted into a production process without detriment to the quality of the end product does not mean that the waste is actually being used as an ingredient.

There are several points that deserve particular focus. For example, in the data that Mr. Wistar supplied to us in our meeting, the levels of hazardous constituents contained in the K061 waste were several orders of magnitude greater than the levels found in the analogous raw material. Because of this, we would then question the role in the manufacture of cement of the volatile hazardous metals (such as lead) that are typically found in K061 wastes.

An additional concern is that the mixing of K061 waste with

millscale (a nonhazardous solid waste) could constitute dilution of the hazardous constituents. Mr. Wistar states in his letter that such blending is done "... specifically to ameliorate its handling characteristics, and to make the iron content more even." Such necessary adjustments to the hazardous waste could indicate that the K061 waste is, in fact, not an effective substitute for an analogous raw material. Furthermore, when questioned on the possibility of using only the mill scale as an ingredient in the manufacturing of cement, Mr. Wistar stated that while the mill scale could certainly be used as an ingredient, substituting for the iron ore currently used, it would be uneconomical to transport the mill scale to the cement kiln unless additional revenues provided by fees charged to generators for the management of their K061 wastes were also received.

We reiterate that even if it should prove that the K061 waste is being recycled legitimately, the waste-derived cement applied to the land remains a hazardous waste, and in addition must meet the land disposal restrictions treatment standard for waste K061, as per 40 CFR 266.20(b). Presently, this treatment standard (see 40 CFR 268.43(a)) is based on the performance of stabilization, but on August 8, 1990, the treatment standard for high zinc (15% or greater) K061 requires metal recovery (see 53 FR 31162-4; August 17, 1988). Thus, as of August 8, 1990, high zinc K061 could not be used as an ingredient to produce cement in any case without an amendment of current rules.

By way of further guidance, I am attaching a copy of an April 26, 1989, memorandum from me to the Regional Hazardous Waste Management Division Directors concerning the recycling of F006 electroplating sludges. Several aspects of the memorandum are relevant in this case, especially the criteria to be used to evaluate whether a recycling activity is legitimate or requires a treatment permit. If you need further information or have any more questions concerning the recycling of hazardous waste, your staff should contact Mitch Kidwell, of my staff, at FTS 475-8551.

Attachment

cc: Hazardous Waste Management Division Directors
EPA Regions I-VII, IX and X