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Mr. Robert A. Gallaher
President
Allied Aircraft Sales, Inc.
P.O. Box 11816
Tucson, Arizona 85734-1816

Dear Mr. Gallaher:

This letter is in response to your letter dated October 27, 1988, in which you request confirmation that dross from secondary aluminum smelting operations is not a solid waste when used as a feedstock in the manufacture of cement. I want to apologize for taking so long to respond. The questions you asked are difficult ones to answer without fairly extensive discussion.

As I understand your letter, you are interested in selling aluminum dross, a by-product of secondary aluminum smelting, for us in the manufacture of cement. The dross would be a surrogate source of Al₂O₃, which is apparently a necessary constituent in the formulation of cement. The normal source of this Al₂O₃ is alumina-bearing clays. As such, your position is that the dross is not a solid waste, according to 40 CFR Section 261.2(e)(i) and (ii), because the dross is used or reused as an ingredient in an industrial process to make a product and is not being reclaimed and/or is used and reused as an effective substitute for commercial products. As you accurately state in your letter, if the dross is not a solid waste, it is not regulated as a hazardous waste.

There are several factual considerations that must be addressed before a determination can be made as to whether the dross is a solid waste when recycled in this manner. They include:

- the status of the secondary material (i.e., is the dross a listed or characteristic by-product);

- factors in Section 261.2(e)(i) and (ii) that must be considered, including whether reclamation occurs before use/reuse, whether the dross functions effectively as a raw material, and other factors indicative of legitimate recycling, and
- the end use of the cement (i.e., is the cement used in a manner constituting disposal by being placed on the land).

Each of these questions/factors will be discussed in the following paragraphs. Please be advised, however, that the discussion is theoretical in the sense that a final determination as to the regulatory status of the dross and whether it is subject to RCRA regulation, must be made by the appropriate EPA Regional Office or State based on the circumstances associated with the specific site(s) where the activities occur. It may also be the case that an individual State may have more stringent or broader-in-scope regulatory requirements.

The aluminum dross is a by-product as stated in your letter. There are not hazardous waste listings in 40 CFR Part 261 that would apply to aluminum dross, including the recently promulgated process mining waste listings (see 53 FR 35412, September 13, 1988). The assumption made herein is that the dross exhibits a characteristic of hazardous waste, probably EP toxicity for metals. If this assumption is not made, the dross is not regulated under Subtitle C of RCRA and further interpretation is not needed.

Regarding the existing mining waste exclusion in Section 261.4(b)(7) (i.e., solid wastes which are not hazardous wastes), Allied Aircraft Sales, Inc. describes the dross as being from secondary aluminum smelting. The existing exclusion covers certain wastes from the processing of ores and minerals, but only covers situations where the feedstock to the smelter is at least 50% ore or mineral (see 53 FR 41290, October 20, 1988). It is assumed that most of the feedstock is scrap aluminum (greater than 50% scrap); therefore, the mining waste exclusion would not apply to the dross.

In order for Allied Aircraft Sales, Inc. to claim that the dross is not a solid waste per Section 261.21(e)(i) or (ii), the dross must be directly used as an ingredient or substitute without being reclaimed (see 50 FR 619, January 4, 1985). Since you state that the cement manufacturer will "introduce aluminum dross directly into the raw kiln feed", I assume no prior reclamation will occur. Assuming that the dross is being

directly used as a feedstock, it must be determined if the aluminum dross functions as an ingredient in the cement and if use of the dross to produce cement yields distinct components as separate end products, and thus constitutes reclamation. You have indicated that the dross is used to replace Al₂O₃ used in the clay, but have not indicated whether distinct components are formed.

Another consideration in determining whether Section 261.2(e) applies is how contaminated the dross is relative to the clay for which it substitutes. An example of sham use may be using sludges containing high concentrations of heavy metals to form cement (see 50 FR 638). You provided no data on the hazardous constituents in the aluminum dross. It would also be important to know how much variability there might be in different batches of dross and whether the dross is used only in amounts necessary for the production process.

Assuming that the dross does not contain high levels of hazardous constituents relative to the clays normally used, and is used only in necessary amounts, I would likely conclude that Section 261.2(e)(i) or (ii) applies (as claimed in your letter), and that the dross is not a solid waste when so used. However, EPA makes it clear that hazardous secondary materials (e.g., spent materials, sludges, by-products, and scrap metal) used as ingredients in waste-derived products that will be placed on the land are solid wastes (Section 261.2(c)(1) and 50 FR 619). It is conceivable that Portland cement might be used in situations where it is applied directly to the land (e.g., building foundation materials, see 50 FR 628). A characteristically secondary material would be regulated as a solid and hazardous waste up until the formation of product (50 FR 647).

It may be difficult to ascertain the end uses of the cement each time a hazardous secondary material is used as an ingredient. The preamble to the January 4, 1985 Federal Register states clearly, however, that if a secondary material is to ultimately be used in formulating a product to be placed on the land, then it is a solid waste from the point of generation, through transportation, and including any storage prior to being used in formulating a product. The Agency has temporarily deferred regulation of these waste-derived products applied to the land (50 FR 646), provided the product used in a manner constituting disposal meets applicable land disposal restriction standards (Section 266.20 (b)). Although the product is not regulated, the use as disposal on land continues to subject the secondary material used to form the product to regulation as a solid and hazardous waste, notwithstanding the fact that Section 261.2(e)(i) or (ii) would otherwise classify qualifying dross as not being solid waste.

As a final note, in your letter you referred to "fly ash as a constituent in cement" (from 50 FR 619) as an example given by EPA of using or reusing secondary materials as feedstocks in production processes. According to the description given in the May 6, 1987 Federal Register (52 FR 16987), cement kilns produce large amounts of particulate emissions (fly ash) which are often returned to the kiln. Not only is this ash probably very similar to what is already in the kiln, it is specifically exempt from RCRA as well (Section 261.4(b)(8)). Thus, the fly ash example may not be directly applicable to the use/reuse of aluminum dross.

In summary, Section 261.2(e) is likely to be applicable to the dross if it is not reclaimed, if it is an effective substitute, and if the product formed is not applied to the land. No data is provided on the amount of type of hazardous constituents in the dross. If toxic metals are involved, you should determine how the levels of toxic metals in the dross differ from those found in the clays normally used.

In closing, I would like to reiterate that the final determination as to the regulatory classification of the dross and the extent of regulation under RCRA, if any, for a particular site or operation must be made by the appropriate EPA Regional Office or State.

If you have any additional questions or need further clarification, please call Steve Cochran at (202) 475-9715.

Sincerely,

Original Document signed
"Denet for"

Sylvia K. Lowrance
Director
Office of Solid Waste