9444.1994(09)

United States Environmental Protection Agency
Washington, D.C. 20460
Office of Solid Waste and Emergency Response

December 19, 1994

Mr. Paul R. DiBella
Metals Recycling Technologies Corp
3350 Cumberland Circle, Suite 970
Atlanta, Georgia 30339

Dear Mr. DiBella:

In your letter of October 11, 1994 to Michael Shapiro, you request two regulatory determinations under the Resource Conservation and Recovery Act (RCRA) on the status of zinc oxide produced by Metals Recycling Technologies Corp. (MRT) at Nucor Corporation's electric arc steel furnace in Darlington, South Carolina. You ask: 1) whether the use of MRT Zinc Oxide as a nutritional supplement in the animal feed industry is use constituting disposal?, and 2) whether MRT Zinc Oxide that is sold to primary electrolytic zinc refineries is a product? This response can only answer these questions in general terms from the perspective of the Federal RCRA program. Any case-specific regulatory determinations on the status of these materials should be made by the appropriate regulatory authority, usually the authorized State or EPA Regional office.

Regarding the first issue of zinc oxide used for animal feed, MRT produces a zinc oxide material reclaimed from K061, emission control dust from electric arc furnaces, a listed hazardous waste. In your letter to the Environmental Protection Agency (EPA), you stipulate that this zinc oxide is completely reclaimed prior to sale for use as a nutritional supplement in animal feed. You indicate that no further reclamation or processing of MRT zinc oxide is necessary. If the reclamation process is complete, MRT zinc oxide would not be considered to be a hazardous waste and therefore not subject to RCRA regulation unless it is burned for energy recovery or used in a manner constituting disposal. 40 CFR Section 261.3(c)(2)(i).

In general, EPA does not believe that using hazardous wastes

that are recycled (hereafter referred to as recyclable materials) as nutritional supplements in animals feed preparations is considered to be use constituting disposal. In contrast to crop fertilization, many animal preparations are not applied to the ground directly (although there may be some exceptions to this which would need to be determined on a case-by-case basis). Again, for case-specific determinations, you are encouraged to consult with the appropriate authorized State or EPA Region regarding the regulatory status of MRT zinc oxide sold as a nutritional supplement for animal feed.

Regarding the second issue of whether MRT zinc oxide sold to primary electrolytic zinc refineries is a waste or a product, this determination depends upon whether the zinc oxide has distinct components being recovered to produce a separate end product or the zinc oxide is being refined to concentrate the material as a whole and remove impurities prior to being introduced into commerce.

 Recyclable materials remain hazardous wastes until the reclamation process is complete. Whereas, recyclable materials that have been completely reclaimed that had been hazardous wastes are no longer considered to be wastes. Thus, metal-bearing recyclable materials that are fully reclaimed for direct use or only need to be refined to be usable are products rather than wastes. 40 FR 614, 634 (January 4, 1985).

EPA's understanding of primary electrolytic zinc refining processes is that after zinc concentrates have been roasted to remove sulfur and other impurities that the zinc-bearing material (usually a zinc oxide) is leached into solution and treated to remove remaining metal impurities. Following the removal of the zinc leach residues, the zinc solution is electrowinned to produce zinc cathode metal which is then sent on for melting and casting. Thus, the zinc refining process can be said to chemically change the zinc oxide (normally an impure oxide) to zinc metal.

In contrast to other metal refining processes where the feedstock is already in the form of a metal, zinc refining results in the recovery of zinc metal as a distinct component and separate end product from a zinc compound (either a zinc oxide or zinc salt). Because zinc metal, a distinct component of zinc oxide, is being recovered as a separate end product, EPA views this type of process as further reclamation and therefore would view the secondary zinc oxide feedstock inserted into the process as a

partially-reclaimed material rather than a fully-reclaimed material. Because the K061-derived zinc oxide would be partially-reclaimed, it would continue to be a hazardous waste rather than a product. Please note, however, that if the zinc oxide is sold as zinc oxide that is not used in a manner constituting disposal, burned for energy recovery, or sent on for subsequent reclamation and meets all product specifications for zinc oxide, that EPA would view this as a fully reclaimed material (as a zinc oxide) and therefore a product rather than a waste. Even though EPA views processing MRT zinc oxide in a primary electrolytic zinc refining process as a partially reclaimed material, the zinc oxide would no longer be considered to be a solid or hazardous waste if variance for partially-reclaimed materials (40 CFR Section 260.30(c)) is granted by the appropriate regulatory authority (either the State Director or EPA Regional Administrator).

Please be aware that under Section 3006 of RCRA (42 U.S.C. Section 6926) individual States can be authorized to administer and enforce their own hazardous waste programs in lieu of the Federal program. When States are not authorized to administer their own program, the appropriate EPA Regional office administers the program and is the appropriate contact for any case-specific determinations. Please also note that under Section 3009 of RCRA (42 U.S.C. Section 6929) States retain authority to promulgate regulatory requirements that are more stringent than Federal regulatory requirements. I hope that this letter sufficiently responds to your questions and concerns. If you have any further questions or comments, please contact Paul Borst of my staff at (202) 260-6713.

Sincerely,

David Brussard, Director
Characterization and
Assessment Division

Attachment

Metals Recycling Technologies Corp.
3350 Cumberland Circle, Suite 970
Atlanta, Georgia 30339

October 11, 1994

VIA OVERNIGHT DELIVERY

Mr. Michael Shapiro
Director, Office of Solid Waste
United States Environmental Protection Agency
Regulatory Development Branch
401 M Street, SW
Washington, D.C. 20460

Dear Mr. Shapiro:

Metals Recycling Technologies Corp. ("MRT") is writing to request regulatory determinations as to the status of certain fully reclaimed zinc oxide ("Zinc Oxide") produced with the MRT Process and used as described herein. Specifically, MRT requests determinations on the following:

1. Whether the use of fully reclaimed MRT Zinc Oxide as a nutritional supplement in the animal feed industry is a use constituting disposal?

2. Whether fully reclaimed MRT Zinc Oxide that is sold to primary electrolytic zinc refineries is a product?

EPA has repeatedly recognized that its regulatory jurisdiction under the Resource Conservation and Recovery Act (RCRA) over "wastes" and "partially reclaimed" materials does not extend to (i) fully reclaimed materials that are used beneficially and not burned for energy recovery or used in a manner constituting disposal [See 40 CFR Section 261.3 (c)2(i)], or (ii) fully reclaimed materials that only have to be refined to be usable [See 50 Fed Reg. 614, 634 (Jan. 4, 1985) and 56 Fed Reg. 41164, 41173 (Aug. 19, 1991)].

Background

MRT owns and operates the MRT Process, a patented hydrometallurgical process that recycles electric-arc furnace dust. The first commercial MRT Process facility is operating at Nucor Corporation's Darlington, South Carolina steelmaking plant. Information on the MRT Process was previously supplied to EPA in MRT's letter to EPA of July 26, 1994, wherein MRT requested a regulatory determination on the status of a certain lead/copper metal produced with the MRT Process.

One of the products of the MRT Process is zinc oxide. Zinc oxide is a specialty chemical used in a number of industries. Among its uses, zinc oxide is used as an ingredient in the making of tires, rubber, pharmaceuticals, ceramics, paint and nutritional supplements. World consumption of zinc oxide is approximately 800,000 metric tons annually.

The MRT Process produces commercial grade zinc oxide. The zinc oxide content of MRT Zinc Oxide ranges from 95% to over 99%. At either end of the zinc oxide content range, the heavy metal content of the MRT Zinc Oxide remains very low. Lead levels in the MRT Zinc Oxide are expected to average under 100 parts per million, and cadmium levels are expected to average under 40 parts per million.

MRT Zinc Oxide as a Nutritional Supplement in the Animal Feed Industry

The animal feed industry currently uses zinc oxide as a nutritional supplement. The zinc oxide as a nutritional supplement provides livestock with a source of zinc, a necessary dietary nutrient.

MRT is considering selling a portion of fully reclaimed MRT Process Zinc Oxide to the animal feed industry as a nutritional supplement. Used in this manner, the MRT Zinc Oxide will be mixed directly with other nutritional supplements and fed to livestock such as cows, pigs and other animals. No further reclamation or processing of the MRT Zinc Oxide is necessary. MRT believes that when used as a nutritional supplement in the animal feed industry, the MRT Zinc Oxide is not used in a manner constituting disposal, and, therefore, pursuant to 40 CFR Section 261.3 (c)(2)(i), is not subject to RCRA jurisdiction.

MRT Zinc Oxide Sold to Primary Electrolytic Zinc Refineries

From time to time, MRT may sell a portion of its fully reclaimed Zinc Oxide to primary zinc refineries, where the zinc oxide will be refined into zinc through electrolytic refining processes. There is no thermal metal recovery involved in electrolytic zinc refining. Moreover, the reclamation process on the MRT Zinc Oxide is already complete when it reaches the electrolytic zinc refineries. While the MRT Zinc Oxide used in this manner is suitable for a number of direct uses, market and/or economic conditions may provide justification for selling the Zinc Oxide to such primary zinc refineries.

As stated earlier, EPA has consistently taken the position that fully reclaimed materials suitable for direct use or that only have to be refined to be usable are "products", not "wastes" subject to RCRA jurisdiction. [See 50 Fed Reg. 614, 634 (Jan. 4, 1985) and 56 Fed Reg. 41164, 41173 (Aug. 19, 1991)]. Accordingly, MRT believes that fully reclaimed MRT Zinc Oxide sold to primary zinc refineries for use in electrolytic zinc refining processes is a "product", not a "waste", and, therefore, not subject to jurisdiction under RCRA.

Based on the foregoing, MRT respectfully requests regulatory determinations on the MRT Zinc Oxide used in the manners described above.

METALS RECYCLING TECHNOLOGIES CORP.

PRD/bc
Enclosures

cc: Paul A. Borst, U.S. EPA
John E. Johnston, U.S. EPA Region IV