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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

OCT 3 1989

Mr. Jeffrey O. Cerar  
Squires, Sanders, and Dempsey  
1201 Pennsylvania Avenue, Northwest  
Washington, D.C. 20004

Dear Mr. Cerar:

This is in response to your letter of August 16, 1989, concerning the petitions of the Ferroalloy Association and Macalloy Corporation to withdraw the K090 and K091 hazardous waste listings.

As indicated in your letter and our meeting on July 17, the Agency does not believe that trivalent chromium is a more serious health concern than previously believed. Recent evidence suggests that Chromium (III) may be a potential carcinogen.

The toxicokinetics of chromium have been well studied and are documented in the literature. chromium (both III and VI) have been found to be absorbed in humans and animals following inhalation, oral, and dermal exposure (Tox Profile for Chromium, 1987). Chromium (VI) is taken up through the cell membranes and reduced to Chromium (III) intracellularly. In addition to the Chromium (III) metabolites, several other potentially genotoxic chromium metabolites are formed such as chromium (V and IV) as well as reactive peroxides and oxygen radicals. (Tox Profile for chromium, 1987). However, it is thought that chromium (III) may be the predominant genotoxicant producing DNA-protein cross links and DNA strand breaks (Beyersmann and Koster, 1987).

Until recently it was assumed that chromium (III) was unable to permeate the cell membrane due to negative results from in vitro genotoxic assays and positive results with isolated nuclei and purified DNA (Tox Profile for chromium, 1987). Recent studies, however, have shown that chromium (III) complexes can penetrate biomembranes and induce DNA damage (de Flora et al., 1984; Beyersmann and Koster, 1987).

In light of the existing studies showing absorption of Chromium (III) via inhalation, oral and /or dermal exposure; permeation of chromium (III) across cell membranes, and evidence that chromium (III) is a genotoxicant, chromium (III) toxicologists would be happy to meet with you to discuss this further.

Because of our toxicological concerns with trivalent chromium, the Agency is also rethinking the appropriateness of the exclusion under section 26104(b)(6) for wastes which contain chromium which is nearly exclusively in the trivalent form. As you stated in your letter, however, we will need to go through rulemaking to amend the regulations.

In addition, the Agency remains concerned about the conversion of trivalent chromium to the more toxic hexavalent form under certain plausible mismanagement scenarios, which was the original basis for the listing of K090/91. Thus, data submitted by the Ferroalloy Association on the K090/K091 proposed listing regarding valence did not affect the Agency's listing determination. Given these concerns with both trivalent and hexavalent chromium, we believe that the decision to list K090 and K091 on the basis of total chromium was appropriate.

In your letter you indicated your concern with how the Agency lists wastes based on the presence and concentration of Appendix VIII constituents. It has always been the Agency's practice to consider the factors outlined in 40 CFR 261.11(a)(3) when listing a waste as hazardous. For the reasons described above, EPA believes that the listing of K090 and K091 was appropriate after considering all the relevant factors.

You also expressed concern over the variability of the waste covered by the K090 and K091 listings and indicated that the Agency should not regulate them if the wastes are not consistently hazardous. Although the technologies which generate the waste differ and chromium levels vary within the ferrochromium industry, the wastes are all generated by air pollution control devices from furnaces used in the manufacturing of ferrochromium or ferrochromium silicon and all wastes contain sufficiently high levels of chromium to warrant listing. We believe that the individual wastes covered by the listings are typically or frequently hazardous if mismanaged.

In regard to data obtained from the extraction procedure (EP) toxicity characteristic, EPA has always maintained that the EP levels are concentrations which are clearly hazardous based on the simulated leaching of certain toxic constituents

from a waste. concentrations below the EP levels also may pose

-3-

a substantial hazard to human health and the environment; thus, the Agency will not remove a listed waste from regulation based solely on data utilizing the EP toxicity characteristic.

Finally, you stated that delisting employs different criteria than listing and is not an appropriate option for your Association's members due to the timeframe and because you believe that the Agency should withdraw the listings. First, delisting requires the Administrator to determine, among other things, that the petitioned waste does not meet any of the criteria under which the waste was listed. Thus, although delisting may consider additional factors, it is not accurate to say that delisting applies different criteria. As stated in our previous letter of June 16, 1989, EPA does not presently intend to withdraw its listings. We must, however, go through proposed and final rulemakings to respond to your members' petitions as well as the petitions regarding the other 4 hazardous smelting wastes. Completing this process may take at least another year. Therefore, delisting may still be an option for your consideration. If the Agency were to apply its VHS delisting modeling tool, chromium bearing wastes may be delistable if the total chromium concentration does not exceed between 0.315 ppm and 1.6 ppm depending upon the annual volume of waste generated and assuming the waste does not exhibit other factors (e.g., additional toxic constituents) which would make the waste hazardous. See the description of the VHS model, 50 FR 48896 (November 27, 1985) for details.

I would like to emphasize that this letter contains only tentative reactions to the issues you have raised. A final determination on your members' petitions to withdraw the listings will be made only after notice in the Federal Register and a full opportunity for public comments. We will also make your August 16th letter, this response, and the technical materials cited above a part of the public record for your petition.

I hope this letter has provided further clarification on the Agency's position. as indicated earlier, our toxicologists would be happy to meet with you to discuss our health concerns with trivalent chromium. Please feel free to contact Dr. Susan Griffin at (202) 382-4295, if you would like to arrange a meeting.

Sincerely,

Robert M. Scarberry, Chief

RO 11472

Land Disposal Restrictions Branch