

US EPA ARCHIVE DOCUMENT

Nick T. Macchiarolo  
Manager, Plant Engineering  
Great Lakes Chemical Corporation  
P.O. Box 7020  
El Dorado, Arkansas 71731-7020

Dear Mr. Macchiarolo:

This letter concerns the hazardous waste listing determination the EPA has undertaken for organobromine production wastes. In a notice published on May 11, 1994 (59 FR 24530), the EPA proposed to list as hazardous waste solids and filter cartridges from the production of 2,4,6-tribromophenol. In response to comments and information received concerning the proposed rule, the Agency reevaluated the listing determination. The Agency provided notice of this new information and reevaluation in a letter dated September 3, 1997. As a result of comments received pertaining to the September 3, letter and further reexamination,

In response to the Agency's letter dated September 3, 1997, one commenter supported the proposed decision to list waste solids from the production of 2,4,6-tribromophenol, but argued that the EPA underestimated the risks posed by disposal of the waste in a Subtitle C landfill for several reasons. One of the reasons cited by the commenter was that the EPA's risk estimates are based on the presence of 2,4,6-TBP only and ignored the presence of other toxic contaminants in the waste and TCLP leachate (see comments by the Environmental Defense Fund, Attachment No. 1). Therefore, the Agency reexamined the analytical data of the record samples from the 2,4,6-tribromophenol production waste. The attached summary (Attachment No. 2) gives the results of the Agency's review of other constituents found in the wastes and the potential risks associated with other chemicals for which the EPA has health-based numbers.

The Agency originally focused on 2,4,6-TBP because this chemical was found at levels that greatly exceeded the other constituents detected. While other constituents were detected in the waste, many were also found in blank laboratory QC samples (e.g., methylene chloride).

However, upon review of the analytical data, the EPA found that 1,2-dibromoethane (also known

as ethylene dibromide, or EDB) was found in both the total and TCLP analyses of a sample of floor sweepings and off-specification product, GL-09. The reason why the EPA did not evaluate the levels of this chemical in the proposed rule was because of a typographical error in the name of this constituent presented in the TCLP analytical results (Background Document to Support a Listing Determination for Wastes From the Organobromine Chemicals Manufacturing Industry, April 1994, pp 121-125). The TCLP sample analyte was identified incorrectly as 1,2-dibromoethene, although it had the correct CAS number for 1,2-dibromoethane.

This sample (GL-09) contained significant levels of 1,2-dibromoethane, which was not found in the blanks. The toxicity of this chemical has been well studied, and the EPA has promulgated a drinking water standard (maximum contaminant level, or MCL) of  $5 \times 10^{-5}$  mg/L based on its carcinogenicity. The TCLP analysis of sample GL-09 indicated that EDB readily leached into the water phase, giving a TCLP concentration of 36 mg/L. This is not surprising given the relatively high water solubility of this chemical (0.4 %, or 4,000 mg/L; see *The Merck Manual*, 9th edition, 1978).

The carcinogenic potential of EDB is so high that after considering the dilution of the TCLP level that might occur in transport from an unlined landfill to a receptor well (100, as noted in the proposed rule), the exposure levels would be 7,200 times above the MCL. The protection afforded by disposal in a lined Subtitle C landfill would have to continuously exceed 99.999% in order to avoid the potential for exposure to concentrations of EDB in the drinking water above the MCL. The carcinogenic risk associated with the levels of EDB in water, even after a 100-fold dilution, would be above  $10^{-3}$ . The Agency believes that the relatively high levels of this chemical in the waste (and the corresponding TCLP sample) further confirm that these production solids contain high levels of highly toxic chemicals and present a substantial hazard, even if managed in a Subtitle C landfill. Thus, the EPA intends to add this chemical to the basis for listing this waste as hazardous in 40 CFR 261, App. VII, and to include the Universal Treatment Standard (UTS) established for EDB (see 40 CFR 268.48) in the table of treatment standards for K140 in 40 CFR 268.40. The UTS numbers for EDB (proposed in the Land Disposal Restrictions Rule, Phase III on March 2, 1994; 60 FR 11722) are 0.028 mg/L for wastewater and 15 mg/kg for nonwastewater.

Pursuant to a consent decree in Environmental Defense Fund (EDF) v. Browner (Civ. No. 89-0598 D.D.C.), the EPA has committed to making a final listing determination for organobromine wastes by April 15, 1998. The Agency is reopening the comment period only for the limited purpose of obtaining information and views on the new information described in this letter, and is not opening up any other aspects of the proposed organobromine listing determination for comment. Comments on the information in this letter will be accepted up to 15 days from the date of receipt of this letter. Due to the limited time the EPA anticipates will be available for promulgating the final rule, the EPA does not plan to grant any extensions of the comment period.

Commenters must send an original and two copies of their comments referencing docket number F-94-OBLP-FFFFF to: RCRA Docket Information Center, Office of Solid Waste (5305G), U.S. Environmental Protection Agency Headquarters (EPA, HQ), 401 M Street, SW,

Washington, D.C. 20460. Hand deliveries of comments should be made to the Arlington, VA, address listed below. Comments may also be submitted electronically by sending electronic mail through the Internet to: [rcra-docket@epamail.epa.gov](mailto:rcra-docket@epamail.epa.gov). Comments in electronic format should also be identified by the docket number. All electronic comments must be submitted as an ASCII file avoiding the use of special characters and any form of encryption. If comments are not submitted electronically, the EPA asks commenters to voluntarily submit one additional copy of their comments on labeled personal computer diskettes in ASCII (TEXT) format or a word processing format that can be converted to ASCII (TEXT). It is essential to specify on the disk label the word processing software and version/edition as well as the commenter's name. This will allow the EPA to convert the comments into one of the word processing formats utilized by the Agency. Please use mailing envelopes designed to physically protect the submitted diskettes. The EPA emphasizes that submission of comments on diskettes is not mandatory, nor will it result in any advantage or disadvantage to any commenter.

Commenters should not submit electronically any confidential business information (CBI). An original and two copies of CBI must be submitted under separate cover to: RCRA CBI Document Control Officer, Office of Solid Waste (5305W), U.S. EPA, 401 M Street, SW, Washington, D.C. 20460.

Public comments and supporting materials are available for viewing in the RCRA Information Center (RIC), located at Crystal Gateway I, First Floor, 1235 Jefferson Davis Highway, Arlington, VA. The RIC is open from 9:00 a.m. to 4:00 p.m., Monday through Friday, excluding federal holidays. To review docket materials, it is recommended that you make an appointment by calling (703) 603-9230. You may copy a maximum of 100 pages from any regulatory docket at no charge. Additional copies cost \$0.15/page.

If you have any questions related to this letter, please contact Anthony Carrell at (703) 308-0458 or Robert Kayser at (703) 308-7304 in the Office of Solid Waste (E-mail address: [carrell.anthony@epamail.epa.gov](mailto:carrell.anthony@epamail.epa.gov) or [kayser.robert@epamail.epa.gov](mailto:kayser.robert@epamail.epa.gov)).

Sincerely,

Elizabeth A. Cotsworth, Acting Director  
Office of Solid Waste

Attachments