



U.S. Department  
of Transportation  
**Research and  
Special Programs  
Administration**

400 Seventh St., S.W.  
Washington, D.C. 20590

FEB 13 2003

Mr. Henry L. Longest, II  
Acting Assistant Administrator  
U. S. Environmental Protection Agency  
1300 Pennsylvania Ave, NW (8101R)  
Washington, DC 20460

Ref No.: 02-0093

Dear Mr. Longest :

This is in response to your January 29, 2002 letter regarding the applicability of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) to certain environmental samples. Specifically, you requested confirmation that environmental samples which are preserved at the Environmental Protection Agency (EPA) prescribed guidance concentrations, even when reasonably over-preserved, are not corrosive materials subject to the HMR.

The answer is yes. According to your letter and test results submitted, four preservatives (three acids and one base: Nitric acid; Sulfuric acid; Hydrochloric acid; and Sodium Hydroxide) were each tested in an aqueous solution. The environmental samples were prepared by adding a preservative to distilled water. Preserved samples were tested for corrosivity in accordance with 49 CFR §173.137.

Based on the test results, it is the opinion of this office that the environmental samples containing the following "upper limit" concentrations: 0.28 weight percent Nitric acid, 0.38 weight percent Sulfuric acid, 0.15 weight percent Hydrochloric acid and 0.20 weight percent Sodium hydroxide, do not meet the definition of corrosive material in §173.136, and, therefore, are not subject to the HMR.

I hope this information is helpful. Please contact us if you require additional assistance.

Sincerely,

Edward T. Mazzullo  
Director, Office of Hazardous  
Materials Standards



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

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OFFICE OF  
RESEARCH AND DEVELOPMENT

Mr. Edward T. Mazzullo  
Director  
Office of Hazardous Materials Standards (DHM-10)  
Research and Special Programs Administration  
U.S. Department of Transportation  
400 Seventh Street, SW  
Washington, DC 20590

SUBJECT: Non Corrosivity of Acid/Alkali-Preserved Environmental Samples

Dear Mr. Mazzullo:

Several months ago, David Friedman of my staff met with Mr. John Gale of the Department of Transportation's (DOT) Office of Hazardous Materials Technology to discuss a problem that the Environmental Protection Agency (EPA) and the environmental analytical testing community in general is facing when shipping environmental samples preserved to meet EPA requirements. Because the samples contain acids or bases regulated under the hazardous materials shipping regulations, confusion exists within the analytical community and, more importantly, among the shipping community over the status of such samples relative to DOT's shipping regulations. While we believed such samples are not hazardous materials, since only a small amount of acid or base is added to the sample, the available DOT guidance (DOT letter of December 13, 1993) was too specific as to the preservative concentrations that were deemed to be non-hazardous. While DOT had determined that samples preserved to meet EPA requirements were not hazardous materials, the wording of the guidance was not broad enough to encompass typical field preservation situations. To that end, we met with DOT's Office of Hazardous Materials Technology to discuss what to do to confirm our assessment that environmental samples, as they are typically preserved to meet EPA guidance, are not hazardous materials.

Following this meeting, EPA reviewed the available literature and the DOT public docket relative to the corrosivity of acids and bases at concentrations typical of those found in preserved environmental samples. As one might expect, insufficient data was found to definitely demonstrate the non-corrosive nature of these materials. We, therefore, proposed to conduct a series of tests to develop the information necessary to resolve the issue.

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After receiving Mr. Gale's review of the study plan and incorporating the additional tests that DOT requested, we studied the corrosivity of the three acids (nitric acid, sulfuric acid and hydrochloric acid) and the base (sodium hydroxide) that EPA specifies to be used to preserve environmental samples of both human tissue, and steel and aluminum using the DOT specified tests. We tested the preservatives at the EPA recommended concentration and at higher concentrations to determine the margin of safety in the event field personnel over-preserved the samples. Our plan was to identify the range of concentrations where the preserved samples are non-corrosive and the point at which they become corrosive.

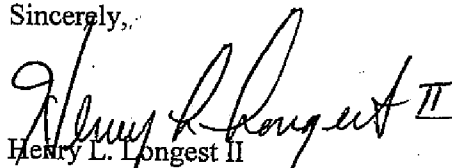
After reviewing the results of the studies described in the enclosed contractor report, *Determination of Corrosivity of Preserved Environmental Samples*, it is our conclusion that environmental samples that are preserved at the EPA prescribed guidance concentrations even when reasonably over-preserved are non-corrosive dermally and to metals. Therefore, such samples do not represent a hazard when shipped commercially and, as such, are not corrosive materials subject to the DOT hazardous materials regulations at 49 CFR Part 171 - 180.

We would appreciate your review of the enclosed report and, if DOT agrees with our conclusion, we would appreciate your written confirmation of our assessment. Namely, that samples preserved with up to the following amounts of acid or base are not corrosive materials under the DOT regulations. These concentrations are:

Nitric acid	0.4 weight percent
Sulfuric acid	0.4 weight percent
Hydrochloric acid	0.4 weight percent
Sodium hydroxide	0.2 weight percent

If you have any questions or comments, please contact David Friedman at (202) 564-6662. Thank you for the help the Department has already provided.

Sincerely,

  
Henry L. Longest II  
Acting Assistant Administrator

Enclosure

cc: David Friedman  
John Gale