

# **ENFORCEMENT AND TOXICITY**

**Clifford E Carnicom  
Santa Fe, New Mexico  
May 24 2004**

**A preliminary analytical estimate of the concentration of barium compounds within atmospheric samples that are under analysis has been reached. This estimate exceeds the limit of human exposure to airborne contaminants. The question of the enforcement of air quality standards arises as a result of this study, and further public involvement with environmental organizations and agencies is advised to address this potential problem.**

**Atmospheric sample tests continue to confirm the presence of barium compounds within the atmosphere. The tests involve a variety of collection methods, including the use of plate ionization filters, electrostatic air filters, HEPA filters, and high grade furnace filters. Methods of analysis include solubility, pH, precipitation, chromatography, electrode, electrolysis, flame,**

spectroscopy and spectroscopy comparison tests. Public environmental agencies are advised to begin the process of replicating the test methods to confirm or refute the results that have been established.

Soluble forms of barium are highly toxic, and are on par with the toxicity levels of arsenic.

The compound reported under this analysis has been collected with a plate ionizing filter. The method of titration leads to a initial concentration estimate of approximately 4 parts per million (ppm). This is an estimate based upon the examination of one sample (collected over an interval of several weeks) only; testing by public service agencies with quantitative equipment with independent verification and monitoring is required. This report is provided as an estimate and an advisory. The initiation of quantitative tests by public service agencies, with independent monitoring and verification, is required.

The maximum allowable limit for human exposure to barium atmospheric contaminants is

0.5 ppm<sup>1</sup>; the current test result indicates that this limit may be exceeded by a factor of approximately eight times.

The maximum allowable limit for human exposure to arsenic is also stated to be 0.5 ppm.<sup>2</sup>

---

Additional Notes:

**TO BE CONTINUED**

This page is subject to revision.

References:

1. Dr. M. Fogiel, Staff of Research and Education Association, Handbook of Mathematical, Scientific, and Engineering Formulas, Tables, Functions, Graphs, Transforms, (Research and Education Association), 964.
2. Fogiel, 964.

[Back to Aerosol Operations Main Page](#)