



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

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OFFICE OF  
THE ADMINISTRATOR

July 17, 1989

Honorable William K. Reilly  
Administrator  
U.S. Environmental Protection Agency  
401 M Street, S.W.  
Washington, D.C. 20460

Subject: Science Advisory Board's review of the ANTIMONY health  
criteria document

Dear Mr. Reilly:

The Metals Subcommittee of the Science Advisory Board's Environmental Health Committee has completed its review of the Drinking Water Health Criteria Document for Antimony dated January, 1988. The review was conducted December 8-9, 1988 at the One Washington Circle Hotel in Washington, D.C. Participants in the review are listed in Enclosure 1. The Subcommittee review focused on two primary issues:

Is antimony tartrate, for which the largest body of data exists, an acceptable compound upon which to base Drinking Water Equivalent Level (DWEL) calculations?

Is the Schroeder et al (1970) study appropriate for deriving the Lowest Observable Effect Level (LOAEL)?

The Office of Drinking Water has identified a LOAEL of 0.43 mg/kg/day based on the Schroeder study noted above--a life-time ingestion study (via drinking water) which reported decreased longevity and altered blood levels of glucose and cholesterol in rats dosed with potassium antimony tartrate. With an uncertainty factor of 1000 ("standard" for LOAEL in animal studies), this produced a Reference Dose of 0.00043 mg/kg/day, and with the usual assumptions about body weight, drinking water consumption, and routes of exposure, a DWEL of 0.015 mg/l of antimony.

The Subcommittee found that the antimony tartrate data are acceptable for determining the DWEL. The problem of comparing the toxicity of the tartrate form, rather than an oxide of antimony (which is presumed to be the form encountered in drinking water)

is important, but without specific data on the oxide, the tartrate data is the sole alternative.

The Subcommittee also found the Schroeder et al study acceptable for determining the LOAEL. Although these data are based on animals, rather than humans, it is the best body of information available. Consequently, the Committee accepts the proposed LOAEL of 0.43 mg/kg/day.

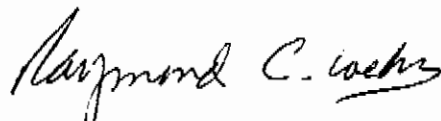
Taking this information together, the Subcommittee found the proposed DWEL of 0.015 mg/l resulting from the data to be a reasonable and conservative finding.

Because of the absence of other acceptable studies, and given the questions and uncertainties surrounding the Prebyl (1927) data, the Subcommittee recommends that the DWEL value also be used for the ten day Health Advisory calculation.

The Subcommittee found that, in general, the antimony criteria document was well prepared. A number of detailed comments and suggestions, on editorial and technical issues have been provided separately to the program office.

The Subcommittee appreciates the opportunity to present our views on the antimony health criteria document. We look forward to the Agency's response to our report.

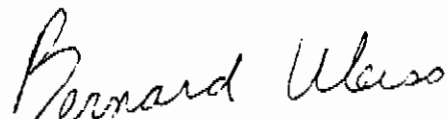
Enclosure



Dr. Raymond Loehr, Chairman  
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Dr. Arthur Upton, Chairman  
Environmental Health Committee



Dr. Bernard Weiss, Chairman  
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ABSTRACT

This report presents the conclusions and recommendations of the U.S. Environmental Protection Agency's Science Advisory Board summarizing a review of the Drinking Water Health Criteria Document for Antimony. The Board's major conclusion is that the proposed Drinking Water Equivalent Level (DWEL) of 0.015 mg/l of antimony, based on the 1970 Schroeder et al study for the Lowest Observable Adverse Effects Level (LOAEL), is appropriate. The Board also found that the use of antimony tartrate acceptable for determining the DWEL.

Key Words: Antimony; DWEL; LOAEL; drinking water,

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