

February 9, 1942.

Dr. T. H. Rider,
Toothpaste,
6901 West 65th Street,
Chicago, Illinois.

Dear Dr. Rider:

Now that we understand each other on the subject of lead tolerances in tooth paste, I think I can go somewhat farther than I did in my last letter. I believe that if we could set up a standard which would insure that not more than 0.05 mgs. of lead per day were likely to be swallowed as the result of using tooth paste, there would need to be no anxiety on this point. To be sure, this is an arbitrary figure, but there are quite a number of reasons for setting it. Just to show how it would be worked out, I am giving you a hypothetical case. You will be able to fill in the figures more accurately than I can, but the case will be illustrative whether accurate or not.

Assuming that a tube of tooth paste contains about 75 grams of material with a concentration of 200 p.p.m. of lead, and assuming that one uses about 2 grams of the tooth paste per day, the amount of lead taken into the mouth would be 0.4 milligrams of lead. Assuming further that a tenth of the quantity might remain on the mucous membranes or be swallowed, the amount available for absorption would be 0.04 mg. I suggest that you modify these figures in accordance with your knowledge of the facts about the amount of tooth paste used per day and the amount which might conceivably be swallowed. I think I have made generous allowances and that any modification on your part is likely to be downward.

Returning now to the figure of 0.05 milligrams. The limit for lead in drinking water as prescribed by the United States Public Health Service for comparatively short periods of use is 0.1 milligrams per liter. This, in my opinion, is too high, but without discussing that feature of the problem, it is based on the presumption that average persons will not take in much more than a liter of water per day. Many food materials, however, which are not subject to such wide variations in quantity of intake daily, would give rise to the consumption of 0.01 to 0.05 milligrams per day. It scarcely seems reasonable to me to condemn the ingestion of lead in such quantities in other materials, for it is our common experience to take in such quantities with

Dr. T. H. Rider - (2) - February 9, 1942.

a generally available food material. I believe this point of view could be defended as representing ordinary common sense. This, I believe, will give you my reaction to your problem.

Cordially yours,

Robert A. Ketroe, M. D.

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