

January 23, 1963

Mr. H. V. Penton, President
California Metal Enameling Company
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California

Dear Mr. Penton:

I trust that the delay in my response to your letter of January 7th has not discommoded you. I have had some difficulty in dealing with the many matters that accumulated on my desk, including those involving correspondence, while I was out of my office for a brief period during the Christmas holidays.

The problem which you present is one to which an off-hand answer cannot - or, at least, should not - be given. I shall first attempt to outline the considerations that are involved, and then deal with certain of the details.

There is a potential problem of public health in every situation which contributes to the quantity of lead which is taken into the body of any individual or group of individuals in a community or nation. One of the most important features of the general problem is that which is concerned with the contamination of food and beverages. I single out this aspect of the matter for the reason that there are so many factors that enter into it that it is exceedingly difficult to keep tract of them, much less to control them. Accordingly, it is necessary to minimize these factors - the opportunities for the contamination of food and beverages - in every reasonable manner. No standard of safety, from the aspect of the permissible lead content of any one (or even several) item of food (or source of contamination) has any meaning whatever except in relation to all other factors. What is required is an over all standard that limits the composite intake of lead in food and beverages to that which clearly is safe. Let me illustrate this point by the following statement of fully demonstrated facts.

1. Adults in the United States, as differentiated from any other population on the globe for which there is no valid information, take in lead with their food and beverages in quantities which range from 0.1 mg. (or a little less at times), to several milligrams (4,5 or more) per day, dependent upon what they eat and how much they eat. The average quantity taken in by any one individual over

any prolonged period ranges from as little as 0.14 to as much as 0.40 mg. per day, again dependent upon what, where and in what quantity the individual eats. The over all average of a fairly large number of individuals is about 0.3 mg. per day. The maximum quantity which an individual can take in daily from these sources, with complete safety, over the period of many years is of the order of 0.6 mg. per day, if all other sources are held at their usually low level. Certainly, it may not be as much as one milligram per day.

2. It is apparent that if an individual chooses his diet properly, or if chance has put him in a suitable environment, the amount of lead which he consumes with food and drink may be below the average of 0.3 mg. per day; but if by chance or choice, he eats heavily of those articles which are highest in lead and most frequently contaminated, his consumption of lead is well above the average. You will note that the margin of safety here is, perhaps, of the order of 0.2 mg. of lead per day, and this margin may be wiped out completely by any one or a number of unusual environmental factors (such as for example an undue degree of contamination of food with lead from cooking utensils or table ware.

3. Another source of lead intake of individuals and of the community as a whole is that of the lead in the air, which at present, generally, is a small contributor, but is made significant by occupational conditions, by localized areas of contamination such as those in the vicinity of manufacturing or processing plants from which lead-containing fume or dust escape into the atmosphere of the neighborhood, and by certain conditions in the household, as for example, the use of storage battery boxes, scavenged from dumps, for fuel.

The discussion above is based upon well substantiated evidence and is in no sense theoretical or imaginary. It is the situation, with respect to lead, in which all of us in this country live. These are the facts which must determine our collective attitude (yours and mine, and all others) toward the further introduction of lead into the ordinary surroundings of our lives. Because of these facts we must take the position that no further significant quantities of lead should be introduced into the food and beverages of our people unless there is a very convincing general economic reason or a definite social benefit in so doing. No such action can be justified by purely commercial considerations, or by the ordinary features of competitive business activity.

This situation in which you are interested differs somewhat, as I see it from that of china ware, in that there appears to be (so I am told by seemingly well informed technical people) a real need (with traditional sanction) for lead in the composition of the glazes. Even here, however, the limit of 4 parts of extractable lead per million parts of the extracting agent used for test purposes is hardly acceptable, since it is possible to develop, apply and finish (in the

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oven or kiln), glazes that are much less susceptible to extraction. (I am not certain as to the prescribed tests required in California, or how these compare with other tests such as those which we have been investigating, so that I may be off-base in speaking quantitatively at this time. The principle, however, will be clear, that the limit must be as low as is technically feasible, after one has decided that there is reasonable social justification for the use of lead in this manner and, therefore, that some tolerance can be granted).

Having expressed myself above, in generalizations, I now wish to make my position in this specific matter, quite clear to you. I know nothing about the technical problems of aluminum ware (I am not speaking here of the hygienic aspects of the matter for there are no valid hygienic problems in relation to aluminum in food). Therefore, I have no opinion as to whether you have any good reason for applying an inside glaze. There would have to be a very good reason to convince me that this is a justifiable technical procedure. If there is no good reason for doing this, it should not be done, and I, for one, would be opposed to the provision of any tolerance with respect to lead. If, however, such a situation exists as would create such a justification, the tolerance should be as low as it can possibly be set so as to require the best technical performance, and yet to permit the process to be employed.

Finally, there is a technical problem here in relation to the standardization of a method of testing, and the development of a standard of quality that will guard against any public danger. Having no knowledge of the competence of the Truesdail Laboratories or of the test methods employed by them in procuring the results which have been reported, I have no opinion at all concerning the facts in the matter.

I suggest that you consider carefully what I have said above and come to some decision as to your wishes and policies. If then you wish to communicate with me further as to what, if anything, you would like us to do, I shall be prepared to go into the matter further.

Very truly yours,

Robert A. Kehoe, M. D.

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