

November 29, 1941.

Mr. John T. Walsh,
American Dry Milk Institute, Inc.,
221 No. La Salle Street,
Chicago, Illinois.

Dear Mr. Walsh:

The question of the contamination of food with lead compounds is an exceedingly important one, and one that is going through a great deal of discussion and controversy in these days. We have done a very considerable amount of work in the field, and we can give a considerable amount of general information. For example, we have a fairly good idea of the quantities of lead which may be present in a variety of food materials, and we can say with considerable accuracy what quantities of lead one is likely to take in with his daily food. I shall send you an article which covers this subject fairly well in a general way. However, when one comes to deal with a specific food material under a new set of conditions, it is not easy to predict just what will occur. Milk products, in general, are very low in their lead content. Milk, naturally, contains only the minutest trace of lead, and even under conditions of reasonably satisfactory handling, the quantities of lead are not very large. It is particularly important that this should be the case in relation to milk. I do not know the purpose for which your solid milk is intended, but if you are dealing with a food material for infants and children, I should feel that it would be a very bad practice to make use of any container which might give rise to exposure of the milk to lead compounds. Even if conditions were such that no lead absorption occurred, you would be running a certain risk, which I think would make it necessary for you to prove time and again that no actual hazard existed. I speak here from a considerable experience with legal difficulties arising from the most bizarre ideas on this subject, and if I were responsible for packaging food for children, I would not have anything to do with lead containers, if it was in any way possible to avoid it.

From what I have said above, you can recognize that I am not thinking wholly of the actual hazard. However, getting to the answer to your question of what might be considered the maximum intake of lead, we should have to say that any contribution made by milk to the diet would need to be considered in relation to all of the other sources of lead in the diet. In other words, it can not be considered in relation to milk

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alone. The average American adult takes in approximately $1/3$ mm. lead per day. This comes from a large number of sources. If any one of these sources is seriously changed, the entire picture is modified, and if several are changed at once, as is the tendency at present due to various shortages of materials, as well as changes in practices, the result might well be dangerous. Our evidence indicates that if as much as a milligram per day is taken in soluble form, a somewhat hazardous situation is produced. You will recognize, therefore, there is not too much leeway, and it is necessary for every food handler to be careful not to alter the situation very much. Moreover, when one considers that milk products are used especially by children and invalids, the problem here is not an easy one. I think it is perfectly feasible for you to use a container which has lead in it so long as the leaded surface does not come in contact with the milk. By proper technical means, one could offer every reasonable assurance that no such actual contact would occur. Under such conditions, there should be no contamination of the product with lead. Despite these facts, however, I still say that if I were a distributor of milk products for human consumption, I would not use a container having a lead surface, if it could possibly be avoided.

Very truly yours,

Robert A. Kenoe, M. D.

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