

June 3, 1930

Mr. H. M. Williams,
Frigidaire Corporation,
32 N. Main Street,
Dayton, Ohio.

Dear Mr. Williams:

I have read your letter of May 28 in regard to the use of a porcelain frit which contains lead. There are two aspects of this problem. One of them is that you undoubtedly introduce some lead hazard into the spraying process in addition to the one you now have, namely that of silica. Both of these hazards will require a certain amount of observation. This brings to my mind a statement of Dr. Shafer's to the effect that at the present time he does not have adequate facilities for properly watching your men who are handling the porcelain spraying in such a way as to check the development of silicosis among them. This has nothing to do with the question you have asked me, but it strikes me that anything that you can do toward making it possible for Dr. Shafer to watch these men, follow them, and to exclude from time to time such men as show evidence of silicosis, you ought to do. I recognize that you are not in charge of the works, but I believe that your voice is listened to with a considerable amount of respect.

How important the addition of lead to this porcelain will be to your porcelain handlers I do not know. I suspect that it will not be very important. That is a matter which we can check without any great inconvenience. The effect of such a porcelain upon food materials is one which is in all probability insignificant. I do not believe that it will occasion any difficulty, nor that it will make any subsequent contribution to the lead content of food materials. In any case, there will be no danger in resorting to the use of this material for such a time as would be necessary to enable us to arrive at a certain conclusion in the matter. We fully anticipate a thorough-going study of the extent to which food materials in general are contaminated with lead as the result of spraying with insecticides, and as the result of picking up lead from various containers in which they are to be kept. The investigation of your problem, therefore, would be right in line with what we propose doing, and it would take only a very short time. I see no reason, therefore, why you should not go ahead with your program if you can in this way get away from your mechanical difficulties.

Sincerely yours,

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FRIGIDAIRE CORPORATION

SUBSIDIARY OF GENERAL MOTORS CORPORATION

CABLE ADDRESS
"FRIGIDAIRE"
ALL CODES USED

DAYTON, OHIO..U.S.A.

May 28, 1930.

Dr. Robert A. Kehoe,
University of Cincinnati,
Cincinnati, Ohio.

Dear Dr. Kehoe:-

We have, in the past, endeavored to keep all materials used in finishing work at the Moraine City Plant, free from lead. In the past white lead paints were used, and various leaded materials, in various ways. These have all been replaced by zinc pigments with the exception of the Duco primer, which contains basic lead sulphate which is, according to the reports of the duPont Company, insoluble.

We have always insisted that the frit from which our porcelain is made be free from lead. This was due to the fact that this frit was ground in a ball mill to a very fine slurry with tin oxide and clay. This ground frit is put on the work by dipping or spraying. The frits used in the past for this purpose were not acid proof and did not contain any lead. We are now able to purchase an acid proof frit containing 1 to 1-1/2% of lead. The lead is placed in to a melt, which is a glass mixture, and in the final condition the lead is probably present as silicate. At any rate the lead is in an insoluble form.

This frit is ground, as mentioned above, and then is sprayed on to the work and baked at about 1500°F. After it comes out the finished article is acid proof and is not affected by such acids as hydrochloric, tartaric, citric, acetic, malic, and oxalic. We would like very much to go to the use of this type of acid resisting frit and it is practically impossible to use a frit entirely lead free on account of the fact that the fusing point is too high and our liners are warped by such high heat. By the addition of this small percentage of lead to the mixture, the fusing point of the resulting porcelain is brought into working range and inasmuch as the lead is in an insoluble form, in both the frit state and in the final fuse state, we feel that we will be justified in going to this material for use on our linings. We would like very much to have your opinion in this matter before we take any steps in following out this program.

Everything is progressing very nicely with the fluoride refrigerants; the only difficulty is that progress seems kind of slow when we are in such a hurry to work out the usage of F₁₂.

With best regards.

Very truly yours,

FRIGIDAIRE CORPORATION

M. J. Williams
Manager - Research and

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