

Dr. Graham Edgar

Page 2

8-28-34

On the subject of the material which clutters the stand-pipe and the stirrer assembly, this acts in every respect pretty much like straight triethyl lead bromide. To destroy that efficiently with bleaching powder would mean probably filling up the tank to the top. This does not seem very practical and my suggestion would be to build a small tank wide enough to take the stirrer assembly and as deep as the weight tank. This could then be filled with a suitable reagent for either or both dissolution and the destruction of the organic lead compound.

We are searching for such reagents at present, using a new sample of this material which we have just received.

Very truly yours,

GRAHAM

cc: Dr. W. F. Macale
Mr. C. M. Walter
Mr. T. J. Conan


George Colinsart

File 535m
August 28, 1934.

Dr. Graham Edgar.

Dear Dr. Edgar:

The following is a Progress Report on the problem of cleaning the sludge from Ethyl Fluid Weight Tanks. The mud which settles down when the sludge is allowed to drain is roughly 50% by volume of the original sludge. This mud itself is 70% solid, which analyzes as follows:

Fe ₂ O ₃	30%
Pb	27.6
Silica, etc.	1.3

The balance is, of course, whatever is combined with the lead, as well as some organic matter.

Benzene extracts 42.5% by weight of the above material, and this contains 13.8% Pb out of the original 27.6%.

As you know triethyl lead bromide when subjected to steam distillation decomposes apparently to the formula:



This means that steam distillation yields an amount of lead in the distillate which is half of the initial lead. On this basis the 13.8% of lead extracted with benzene would be expected to give 9.4% of steam distilled lead. Actual test gave a recovery of 12 grams, a reasonable check considering how little we know regarding the identity of the compounds present.

Several batches of the "mud" were then treated for various lengths of time with bleaching powder with or without acid, alkali or heat. The acid bleach destroyed only 60% of the organic lead (as measured by steam distillation) while all the other tests gave very good results. The best result to date was obtained with bleach without acid or alkali, after standing for 20 hours. The distillable lead was then down to 0.2%.

These results are now being checked by steam distillation and also by extraction with benzene. We are also attempting to improve further upon those figures by increasing the time of contact, the amount of bleaching powder, and by heat.

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