

Put in other reports found Detroit that are all right

cc: Dr. Graham Edgar

ETHYL CORPORATION

RESEARCH LABORATORIES

1600 WEST EIGHT MILE ROAD

FERNDALE

DETROIT, MICHIGAN

20,

February 12, 1944

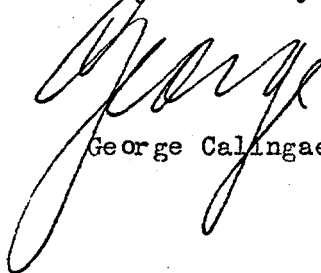
Dr. Robert A. Kehoe
College of Medicine
University of Cincinnati
Eden Avenue
Cincinnati 19, Ohio

Dear Bob:

With reference to the evaporation of gasoline containing tetraethyllead, I am sending you herewith a brief memorandum and two graphs. As indicated in the memorandum, the figures are considered quite reliable up to 90% evaporation, beyond that it seems likely that the presence of CS would affect the shape of the curve.

I shall be glad to hear from you regarding whether this is all you need at the present, or whether you have any suggestions as to some experimental work in the field.

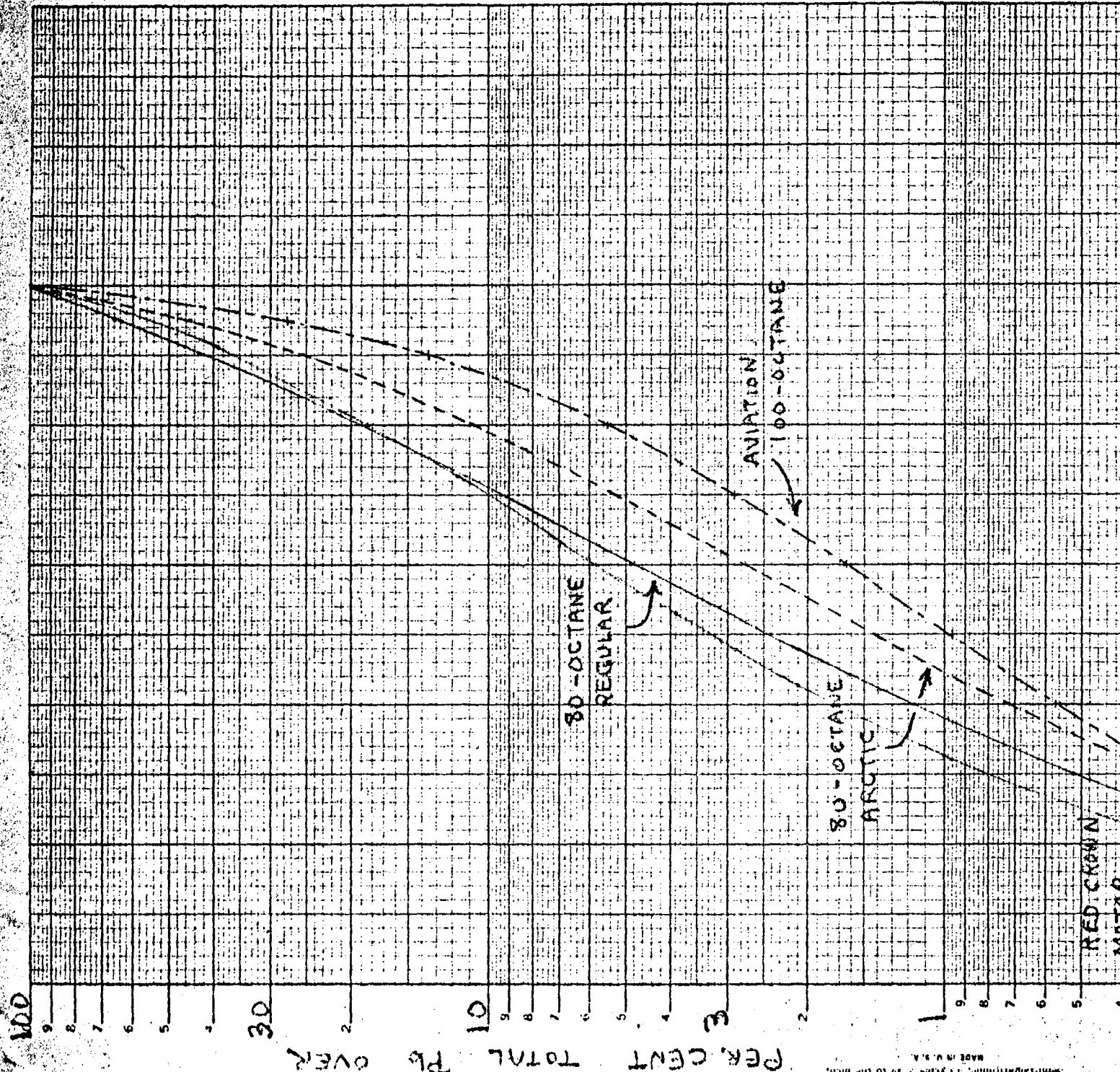
Very sincerely yours,



George Calingaert

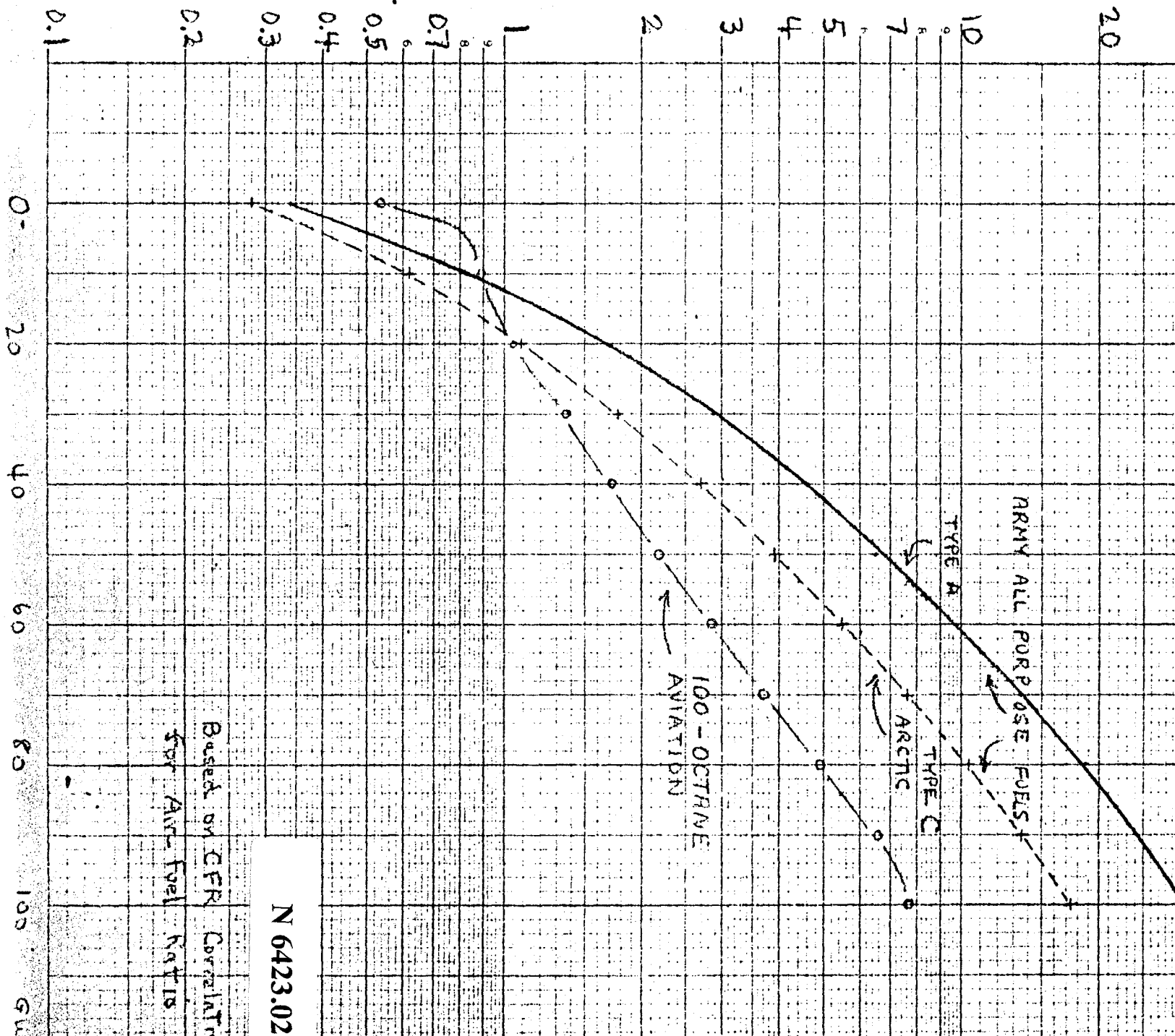
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Encl.

KE 0002354



KE 0002956

KEUFFEL & ESSER CO., N.Y. NO. 155411
Semi-logarithmic Chart - 1 to the 10th
MADE IN U.S.A.



Based on CFR Correlation
for Air-Fuel Ratio

N 6423.02

February 2, 1944

Memorandum to:

Dr. H.A. Beatty

EVAPORATION OF LEADED FUELS

The attached two curve sheets show the distribution of tetraethyl-lead in the evaporation of three leaded gasolines:

- (a) Army All Purpose 80-Octane Gasoline, Type A, 3 cc. TEL/gal.
- (b) Army All Purpose 80-Octane Gasoline, Type C (Arctic) 3 cc. TEL/gal.
- (c) A typical 100-Octane Aviation Fuel, 4.6 cc. TEL/gal.

The results are shown as percent of the total lead evaporated at the corresponding percentage of the fuel evaporated, and also as grams Pb per 10 cu. m. fuel vapor for the fuel vaporized. The calculations were made using the same molecular volume vs. boiling point correlation used successfully in similar calculations in LTD 39-21 and LTD 41-53 for the prediction of the distribution of lead alkyls. The old curve for Red Crown gasoline shown for comparison is based on the experimental measurements in LTD 39-21.

While some experimental work may be desirable to check the calculations it is not believed that the error will be greater than that corresponding to $\pm 3\%$ in the volume per cent over for the distribution of the lead. The results for the concentration of the lead in the vapor are in much greater doubt because of the uncertainty in the molecular volumes assumed. A discussion with Dr. Kehoe is in order before more calculations are done or even a tentative experimental program is laid out.

The effect of adding a small amount (up to 5%) of CS to the gasoline will have practically no effect on the results at least up to the 90% evaporated point.

George W. Thomson

George W. Thomson

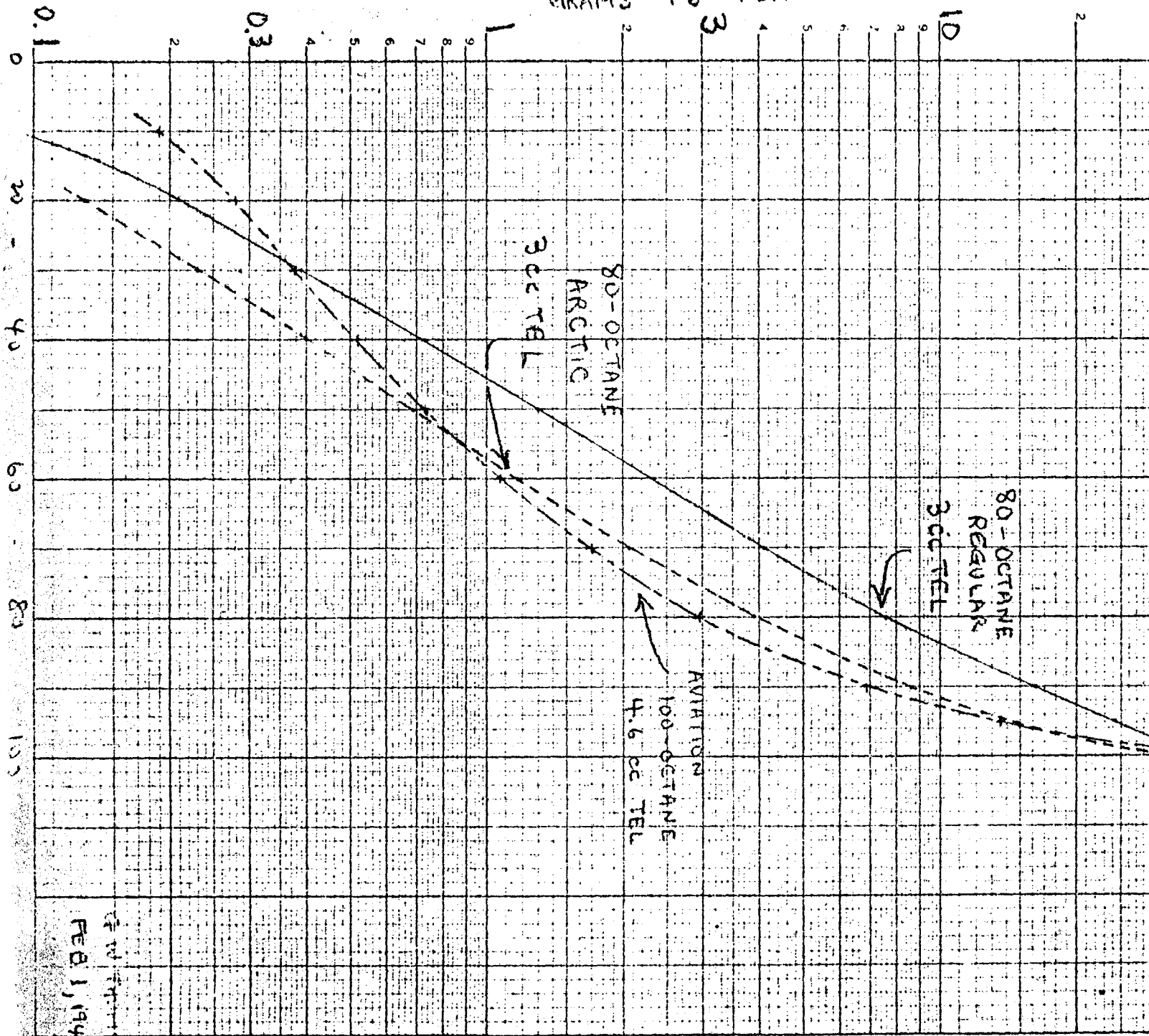
T:C

KE 0002957

KE 0002958

Small Logarithmic Chart - 10 in. by 10 in.
MADE IN U.S.A.

GRAMS Pb PER 10 CU. M. FUEL VAPOR.



FEB 1, 1944