B-7-B

COPY

CONFIDENTIAL

June 3, 1942

729953

R

CLASSIFICATION CANCELLED OR
CHANGED TO Unclassified
BY AUTH. CG DAR-1 4.3.1
BY [signature] ADC DATE 4/1/96
By [signature] ADD 3/15/96

Mr. George W. Roberts, Jr.
M. W. Kellogg Company
225 Broadway
New York City

Dear Mr. Roberts:

Last week Mr. Skelly requested that we make a few runs at 90 lbs./sq. in. ga. and at temperatures of 20°C. and 35°C. You will recall that essentially all of our previous work on the effect of absorption temperature in the low pressure region was made with the poor compound. These runs were made in order to ascertain whether the sharp dropping off of absorption rate when the temperature was increased to 35°C. would still hold when a good compound was used.

These new runs were made in the usual way and the results are given in Table I. You will note that these results indicate that an absorption temperature of 35°C. at this pressure gives very little reaction. The results at 35°C. for an absorption time of 3 minutes have a trend in the opposite direction from that expected. We believe that this is probably experimental error and not any significant trend. We feel that these results indicate that a temperature of 35°C. is completely unsatisfactory for an absorption pressure of 90 lbs./sq.in. ga.

The center temperature was measured during the absorption runs and the results are given in the attached figure. You will note that the temperature rises to a maximum around 35° from an initial temperature of 20°C., and that these maxima are about the same for the different flow rates. In the case of the runs with an initial temperature of 35°C. the maxima were around 42°C. This probably explains the poor absorption at this higher temperature due to the fact that the bed conditions are approaching equilibrium with the gas phase.

We are proceeding to the life test on the material compressed to the high pressures. This work has been delayed due to the fact that we are moving our equipment from one location to another. However, some of the absorbent has been compressed and unfortunately indicates a bulk density around 0.75. We are checking the discrepancy between this value and the ones previously reported.

We are enclosing a set of revised figures to replace those given in our letter of April 1. These revisions are to replace Figures 4 to 10 and Table I of that letter. The revision was made to allow for the volume of the gas present in the voids around the absorbent and the correction is very appreciable at these high pressures.

Yours very truly,

[illegible]

E. R. Gilliland

[illegible]

D. B. Curll, Jr.

1262490

COPY

CONFIDENTIAL

TABLE I

Absorption at 90 psi.

Exit Gas Flow Rate CFH	Sorption Time Min.	Temperature - 20°C. Wt. % Absorbed	Temperature - 20°C. Cumulative Mol % Removed from air	Temperature - 35°C. Wt. % Absorbed	Temperature - 35°C. Cumulative Mol % Removed from air
1.82	3	0.97	45.2	0.25	12.5
	6	2.17	52.4	0.77	20.0
3.54	3	1.35	34.9	0.24	6.6
	6	2.54	33.9	0.96	13.4
6.00	3	1.60	25.5	0.19	3.1
	6	2.73	22.3	1.03	8.7
8.00	3	1.70	20.7		
	6	2.75	17.1		

This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, U. S. C. 50; 31 and 32. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

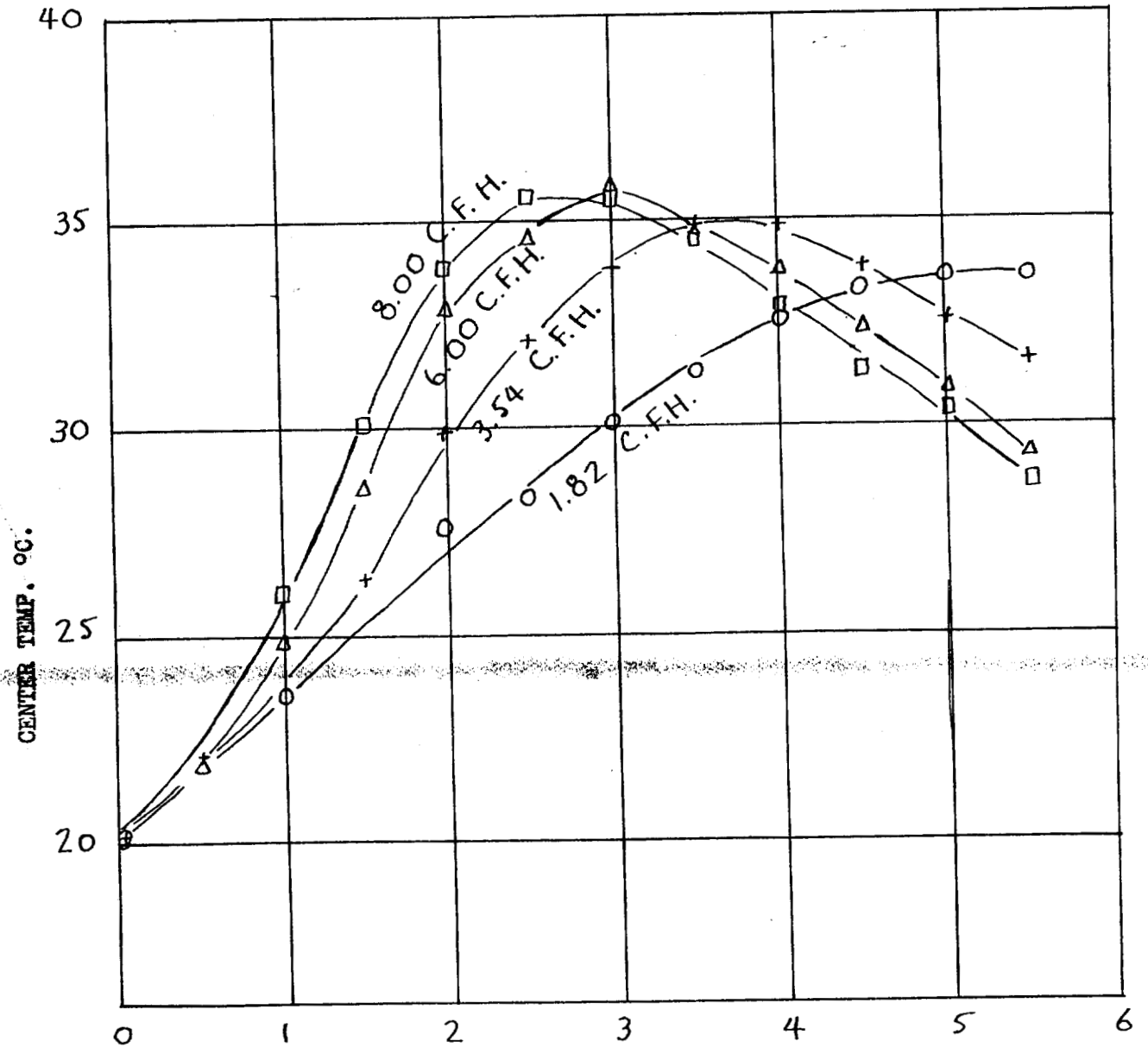
CONFIDENTIAL

CONFIDENTIAL

CENTER TEMPERATURES DURING ABSORPTION

ABSORPTION PRESSURE - 90 psi gage

Flow Rates as Indicated on Curves



ABSORPTION TIME - MINUTES

CONFIDENTIAL

1262492