

INTER-OFFICE MEMO TENNECO CHEMICALS, INC.

TO F.W. Kanzler AT Burlington DATE December 2, 1975

FROM E. Young AT Burlington COPY TO W. Miringoff
J.W. Poarch
P.M. Reed
File

SUBJECT Kinetics Study of Diisononanoyl
(Lupersol 219M75)

At the request of Process Engineering, a kinetics study of diisononanoyl was run in the Analytical Laboratory. A parallel study was run on lauroyl peroxide for comparison. The following formulation was used:

Bottle 1730

100 gm MVC
103 gm demineralized water
0.12 gm catalyst
3 gm DHW-80 (lot # S-9692, received 11/5/75)

Information from Lucidol indicated that 219M75 (75% diisononanoyl peroxide in mineral spirits) is supposed to be an exact match for LP on a gram-for-gram basis, therefore, the catalysts were added using a 1:1 ratio.

The cold temperature storage requirements of 219M75 made it difficult to achieve an exact weight. The actual weights of catalyst used are recorded in Table I. To prevent a breakdown of the 219M75 after charging, the demineralized water-DHW-80 mixtures were chilled in a dry ice-water bath prior to the addition of the 219M75. The bottles containing LP were not chilled prior to the addition of the catalyst.

The bottles were removed from the bath at eight hours, sixteen hours, twenty hours and twenty-two hours. A fifth bottle containing 219M75 exploded after about two hours. This was probably due to a faulty bottle. The companion bottle of LP was removed from the bath. The yields for the remaining four pairs of bottles are recorded on Table II.

The data from Table II was plotted on the enclosed kinetics curve. This curve clearly shows the initial high conversion rate for 219M75. At eight hours, the percent conversion for 219M75 is 13.6% higher than LP, however, at sixteen hours, the difference is only 1.3% and at twenty-two hours the LP is 0.8% higher. This final figure, considering experimental error, could be considered to be equal.

It should be noted that the presence of odorless mineral spirits in the 219M75 had no noticeable effect upon the conversion.

E. Young

Attachments (3)

EY/jst

TABLE I

AMOUNT OF CATALYST USED

	<u>Bottle</u>	<u>Weight</u>
Lauroyl Peroxide:	1	0.1223
	3	0.1220
	5	0.1215
	7	0.1218
	9	0.1213
Lupersol 219M75:	2	0.1218
	4	0.1269
	6	0.1242
	8	0.1245
	10	0.1247

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12/3/75

COLORITE 009773

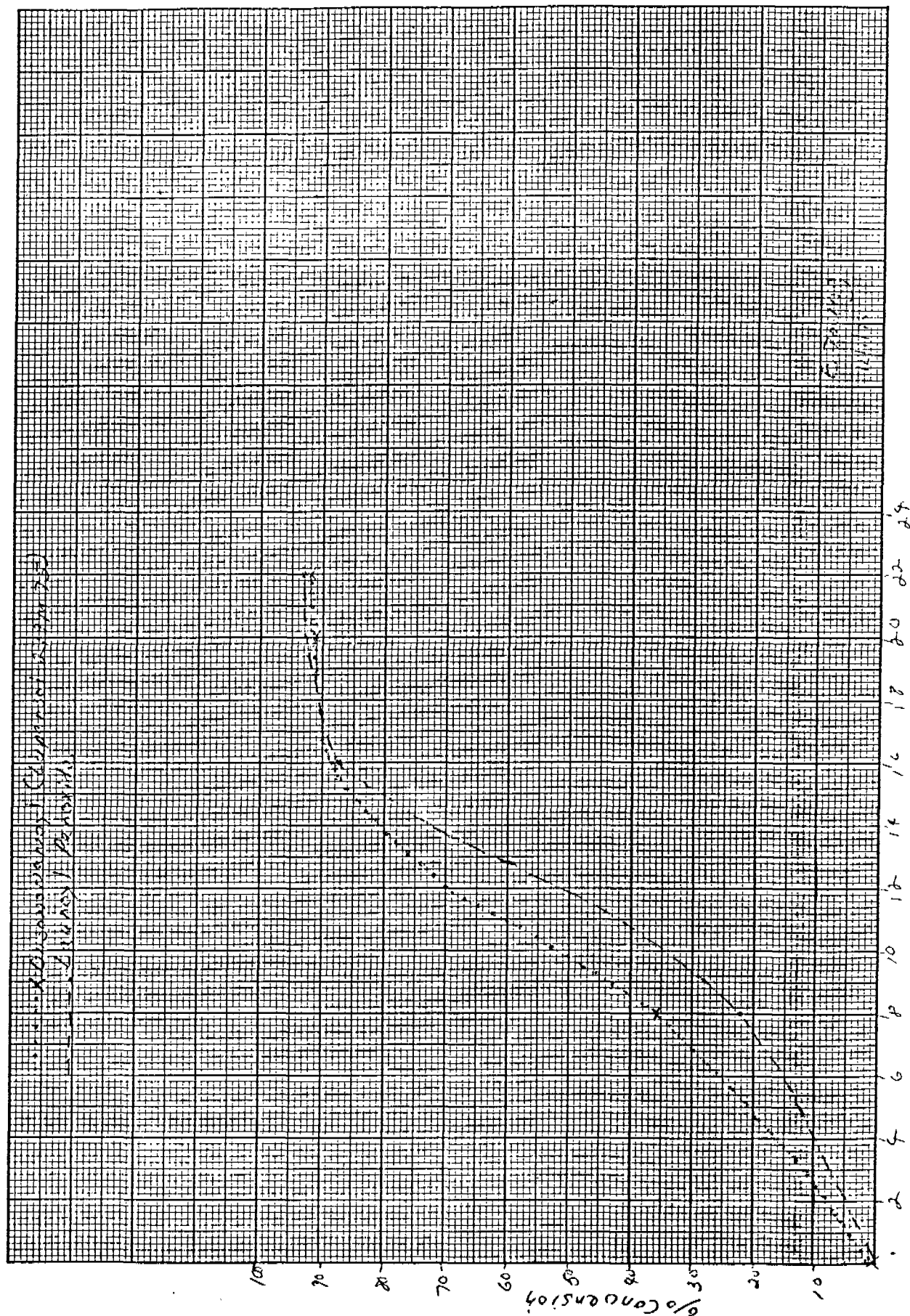
TABLE II

CONVERSION BY BOTTLE

<u>Bottle</u>	<u>Hours</u>	<u>% Conversion</u>
1	8	22.1
2	8	35.7
3	16	87.2
4	16	88.5
5	20	92.6
6	20	91.4
7	out early	-
8	exploded	-
9	22	92.8
10	22	92.0

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12/3/75

KE 20 X 20 TO THE INCH 46 1240
7 X 10 INCHES
MADE IN U.S.A.
KEUFFEL & ESSER CO.



COLORITE 009775