

1950

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
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CHICAGO, ILLINOIS 60637

RECEIVED
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MEMORANDUM FOR THE RECORD

DATE: MAY 15, 1950

TO: DR. R. M. MAYER

FROM: DR. J. H. GOLDSTEIN

SUBJECT: POLYMERIZATION OF STYRENE

1. The following data were obtained from the polymerization of styrene in benzene at 50°C. using a benzoyl peroxide initiator. The reaction was followed by measuring the decrease in viscosity of the solution.

Time (min)	Viscosity (relative)
0	1.00
10	0.85
20	0.70
30	0.55
40	0.40
50	0.25
60	0.15
70	0.10
80	0.08
90	0.07
100	0.06

2. The rate of polymerization is first order with respect to the initiator concentration and second order with respect to the monomer concentration.

3. The activation energy for the polymerization of styrene in benzene at 50°C. is approximately 15 kcal/mole.