indicate a first order reaction. The temperature coefficients are as a minimum 1.5–2 per 25°, giving a minimum activation energy of 25,000–50,000 cal.

An explanation of the relative rates of the reactions is given in terms of activation energies as a function of the size of the molecule and the nature of the linkages to be broken.

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[CONTRIBUTION FROM THE CHEMICAL ENGINEERING LABORATORY OF SYRACUSE UNIVERSITY]

THE MELTING POINT OF META-DINITROBENZENE

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Answering a call issued by J. E. Zanetti,[1] we have carefully determined the melting point of *m*-dinitrobenzene; ninety degrees is commonly given in the textbooks. We used Washburn's[2] method, employing an unsilvered half pint thermos bottle furnished by the Icy Hot Company. The bottle, padded with asbestos except for a small opening through which the thermometer was read, was heated carefully on the sand-bath to about 100 degrees and then allowed to cool during half an hour or forty-five minutes. The solidification temperature was constant over a period of from ten to fifteen minutes. With recrystallized material from the DuPont Company, the following (corrected) results were obtained.

I	89.583	IV	89.553
II	89.593	V	89.563
III	89.563	Mean	89.57

The determinations represent fresh samples in each case, for the melting was found to cause discoloration and decomposition which lowered the solidification point several tenths of a degree. Material that had been melted was recrystallized from alcohol. The solidification point was no higher than that of the DuPont material which was labeled "89.8–89.95 degrees." We made three capillary tube melting point determinations, using hot water as the bath, and found 89.85 degrees for the average. An Anschuetz thermometer, calibrated by the Bureau of Standards, was used throughout.

The work was done at Sweet Briar College in the spring of 1924. The International Critical Tables give 89.7 as the melting point.

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[1] Zanetti, *Ind. Eng. Chem.*, **16**, 88 (1924).

[2] Washburn, *ibid.*, **16**, 275 (1924).