and the extraordinary reactivity of acetylcitric acid are discussed in the light of this electrostatic theory.

7. The concentration dependence of the rates of these reactions has been studied over the range 0.005–0.025 molar. The salt effect is positive, but only qualitatively in accordance with the Brönsted theory of reaction velocity. The slopes of log k *vs.* $\sqrt{\mu}$ range between two-fifths to two-thirds of that predicted in six of the reactions studied. An explanation based on the kinetic character of the activity coefficient, f_x, of the intermediate has been suggested.

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[CONTRIBUTION FROM THE DEPARTMENT OF CHEMISTRY, UNIVERSITY OF TEXAS]

Physical Properties of Methoxymethyl Ethyl Ketone

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In connection with a study of the general properties of keto ethers we have measured a number of physical properties of methoxymethyl ethyl ketone. This ketone, prepared as previously described by Henze and Rigler,[1] was twice redistilled through a small Vigreux column and the fraction boiling between 133.0 and 133.6° (757 mm.) was preserved over anhydrous potassium carbonate.

The vapor pressures between 24.8 and 134.2° were measured by the static method of Felsing and Thomas,[2] except that calibrated mercury thermometers were employed and a small electric light served to indicate the exact height of the mercury in the short arm of the manometer. The observed vapor pressures were found to be given adequately by the equation $\log p = -1429.5/(t + 205) + 7.11187$ with an average deviation of 0.98% and a maximum deviation of 2.56%, without any definite trend among the deviations. For these measurements the ketone was again fractionated and then distilled under a vacuum directly into the attached apparatus. By use of the equation the normal boiling point of this keto ether was found to be 132.9° and the latent heat of vaporization at this temperature, calculated from these data using the Clausius–Clapeyron equation, is $\Delta H = 9364$ calories. Since $\Delta H/T = 23.06$, this ketone is but slightly associated. The entropy of vaporization calculated by the graphical method of Hildebrand[3] is 28.5, indicating that this ketone is a slightly polar liquid.

The densities were determined over the temperature range 0.01–89.91° by means of the Pyrex pycnometer described by Felsing and Durban,[4] the liquid being introduced by distillation into the evacuated bulb. No correction was required for the small amount of vapor present in the stem above the liquid. The densities were expressed adequately by the formula $d_t = 0.9509 - 0.001018t$. The density at 20° calculated from this equation is 0.9305.

The surface tension was measured by means of Cassel's precision capillarimeter[5] and was found to be 30.10 dynes/cm. The index of refraction was measured by means of the Pulfrich refractomer and was found to be n_D^{20} 1.40454, whence $(MR)_D^{20}$ 26.85; calcd. 26.83. Sugden's parachor[6] is 258.2 compared with 259.0, as determined from the density and surface tension data. The Eötvös constant, using the equation of Walden and Swinne,[7] is 2.117.

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