values of thermodynamic properties uncorrected for anharmonicity. The functions of (*12*) were corrected by inclusion of empirical anharmonicity contributions (*6, 14*) selected to fit the calorimetric values of $S°$ and $C_p°$. Values used for the parameters of the anharmonicity function were: ν = 400 cm.$^{-1}$ and $\mathcal{Z}$ = 0.198 cal. deg.$^{-1}$ mole^{-1}. The corrected values of the thermodynamic properties are listed in Table V.

PHYSICAL CONSTANTS

The reported values are based on the 1951 values of fundamental constants for physical chemistry, the 1951 international atomic weights, and the relation 0° C. = 273.16° K.

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Heat of Solution of Ammonia in Ethyl Alcohol at 25° C.

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Certain thermochemical studies at these laboratories recently required some knowledge of the heat of solution of anhydrous ammonia in ethyl alcohol. An exhaustive search of the literature revealed that a rise in temperature had been observed during measurement of the solubility of ammonia in ethyl alcohol (*1*); unfortunately, the energy equivalent of that system had not been measured to permit a molar heat of solution to be computed. This work was done to supply that information.

The reagents used were absolute ethyl alcohol and anhydrous ammonia. No additional purification was attempted with either compound.

Temperatures within the calorimeter were measured and graphed by an automatic temperature recorder using a thermistor for a sensing element (*2*).

For each run, approximately 300 ml. of ethyl alcohol were placed in the calorimeter. After thermal equilibrium was attained, 1800 ml. of ammonia were introduced by mercury displacement from a gas buret (760 mm., 25° C.). When thermal equilibrium was again attained, the energy equivalent was determined by electrical heating. The temperature rises were determined graphically from the time-temperature plot on the recorder chart.

The quantity of ammonia in solution was determined by cold titration with hydrochloric acid. The final solution contained ammonia in a mole ratio of 0.014, approximately one sixth the quantity needed for saturation (*1*).

The average integral heat of solution for ammonia in ethyl alcohol at 25° C. was 6.27 ± 0.03 kcal. per mole exothermic.

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