MacInnes and Belcher's values agree somewhat more closely but not really satisfactorily. However, in spite of these differences, these conductance and electromotive force values are in much better agreement than the earlier values[13] which range between far greater limits. The heat content data check fairly well when we take into account that they were derived by differentiation. Direct calorimetric measurements have been made recently by Pitzer[14] who reported $\Delta H_i^0 = 1843 \pm 60$ cal. at 25°.

Summary

1. The solubility of carbon dioxide in water and aqueous sodium chloride solutions from 0 to 50° has been measured by analyzing the solution contained in cells which were employed for the electromotive force measurements and with the conditions identical in both cases.

2. The logarithms of the Henry's law constants computed from these measurements were expressed by quadratic equations and the constants for these equations were found by the method of least squares.

3. The first dissociation constant of carbonic acid from 0 to 50° was measured by means of cells without liquid junction.

4. The logarithms of the dissociation constants were expressed by a least squared equation. The thermodynamic quantities for the dissociation were calculated from this equation.

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[13] (13) Kauko and Elo, *Z. physik. Chem.*, **A184**, 211 (1939), for example, obtained 2.33×10^{-7} and 3.46×10^{-7} at 0° and 25°, respectively.

[14] (14) Pitzer, THIS JOURNAL, **59**, 2365 (1937).

NOTES

Derivatives of 2-Bromo-3-methylpentanoic Acid

BY CHARLES D. HURD AND F. W. CASHION

In the course of another investigation, 2-bromo-3-methylpentanoyl bromide and several of its derivatives have been prepared.

To a mixture of 25 g. of 3-methylpentanoic acid[1] with 3 g. of red phosphorus in a 200-cc. three-neck flask fitted with a condenser, mercury seal stirrer, and separatory funnel, 30 g. of bromine was added slowly with stirring. The flask was then placed on a water-bath at 95° and about 30 g. of bromine added with stirring until no further absorption took place. The product was distilled at 23 mm. pressure and the fraction boiling between 92 and 102° collected. Redistilled, a yield of 30 g., or 54% of colorless 2-bromo-3-methylpentanoyl bromide, boiling at 98–100° under 23 mm. pressure and fuming in air, was obtained. It was analyzed for bromine by fusion with sodium peroxide.

Anal. Calcd. for $C_6H_{10}OBr_2$: Br, 62.0. Found: Br, 63.1.

2-Bromo-3-methylpentanamide.—A well-stirred mixture of 1 g. of the acid bromide in 10 cc. of concentrated ammonium hydroxide was filtered and the solid amide crystallized from 2 cc. of a 25% aqueous alcohol; yield, 0.3 g. of a white crystalline substance, m. p. 104° and slightly soluble in water.

Anal. Calcd. for $C_6H_{12}ONBr$: Br, 41.2. Found: Br, 40.7.

2-Bromo-3-methylpentananilide.—One gram of the acid bromide was mixed with 1 g. of aniline. Considerable heat was evolved. After trituration with 10 cc. of water and decantation, the remaining solid was crystallized twice from 4-cc. portions of a 60% aqueous alcohol; yield, 0.5 g. of a white, crystalline, water-soluble compound of m. p. 84°.

Anal. Calcd. for $C_{12}H_{16}ONBr$: Br, 29.6. Found: Br, 30.3.

2-Bromo-3-methylpentane-*p*-toluidide.—A similar procedure to the above with 1 g. of *p*-toluidine yielded 0.6 g. of the white, water-insoluble *p*-toluidide, m. p. 105°.

Anal. Calcd. for $C_{13}H_{18}ONBr$: Br, 28.1. Found: Br, 28.8.

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[1] (1) "Organic Syntheses," John Wiley and Sons, Inc., New York, N. Y., 1931, Vol. 11, p. 76.

2,2,2-Trifluoroethyl Iodide

BY HENRY GILMAN AND R. G. JONES

2,2,2-Trifluoroethyl iodide has been prepared by the reaction of hydrogen iodide with 2,2,2-trifluorodiazoethane[1a] in toluene solution at −75°. Although the reaction was violent at the low temperature used, a 77% yield of trifluoroethyl iodide was obtained.

$$CF_3CHN_2 + HI \longrightarrow CF_3CH_2I + N_2$$

The reaction of red phosphorus and iodine with trifluoroethanol[1b] produced large quantities of hydrogen iodide, but gave only very small yields of the 2,2,2-trifluoroethyl iodide.

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[1] (1) (a) Gilman and Jones, THIS JOURNAL, **65**, 1458 (1943); (b) Gilman and Jones, *ibid.*, **65**, (1943).