

Table II. Calculated Results

Atomic Fraction of Tin	A ^a	B ^a	Average Deviation ^b Mm. of Hg	ΔH		γ_{Hg}	
				Cal./G. atom vapor		275° C.	300° C.
0.100	7.8613	-3149.78	1.78	14,414		1.046	1.040
0.200	7.9358	-3203.78	1.82	14,661		1.143	1.106
0.300	7.9419	-3225.01	2.04	14,758		1.180	1.166
0.400	7.9326	-3246.59	2.51	14,857		1.254	1.223
0.500	7.9595	-3291.15	1.59	15,061		1.346	1.295
0.599	7.9208	-3320.44	1.96	15,194		1.360	1.310
0.700	7.8492	-3339.21	2.06	15,280		1.426	1.360
0.798	8.1371	-3598.78	1.49	16,468		1.463	1.339

^aLog $P_{\text{mm}} = A + B/T^\circ \text{K.}$, vapor pressure correlation. ^bAverage deviation between experimental and correlated vapor pressure in mm. of Hg.

RESULTS AND DISCUSSION

The measured pressure and temperature are shown in Table I. These data points are consistent with Hildebrand's data (2) by graphic observation and were fitted into Equation 1 for each level of liquid composition.

$$\log P = A + B/T \quad (1)$$

The computed constants are in Table I. Deviations of data points from the computed equations appear random from graphical plots.

Loss of mercury from a solution due to condensation on upper wall of the still was checked by weighing adhered droplets after a sequence of runs. The maximum error was about 0.3 atomic % and subsequently liquid compositions are reported here according to the weight of charge without correction. Solutions containing 0.10 to 0.60 tin were made by adding successive amounts of tin to solution and those of 0.7 and 0.8 were made by adding mercury to solution.

Assuming ideal behavior of mercury vapor, liquid phase activity coefficients of mercury can be calculated according to $\gamma_{\text{Hg}} = P/x_{\text{Hg}}P$ since the vapor pressure of tin is less than 10^{-6} mm. of Hg as extrapolated from data in (5). Vapor pressure of mercury was calculated from correlations in (3). Magnitude of γ_{Hg} indicates the extent of deviation of solution from ideality. Values of γ_{Hg} at 275° and 300° C. as calculated from those correlated P 's, were plotted on Figure 2.

Using thermodynamic relationships and an assumption of ideal behavior, the differential heat of vaporization ΔH can also be calculated from the correlated value of B as $\Delta H = -2.3RB$. Calculated values are plotted in Figure 3 and also shown in Table II.

NOMENCLATURE

- A, B = constants in Equation 1
 ΔH = differential heat of vaporization
 p = vapor pressure of mercury
 P = vapor pressure of solution
 R = universal gas constant
 X = atomic fraction of mercury in liquid solution
 γ = activity coefficient of mercury in liquid solution

LITERATURE CITED

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CORRECTION

In the article "Thermal Studies of Nickel, Cobalt, Iron and Copper Oxides and Nitrates," by W. M. Keely and Harry W. Maynor [*J. CHEM. ENG. DATA* **8**, No. 3, 297-300 (1963)] there is an error in the numbering of the figures. The captions and legends for Figures 2 and 3 should be reversed.