

A P P E N D I X . I

TABLE 1

VALUES OF $\log U_H^\circ$ IN DIFFERENT DIOXAN-WATER MEDIA AT 25°C.

Dioxan % (v/v)	Mole fraction of dioxan, n_2	$\log U_H^\circ$	
		Agrawal (1)	Irving (2)
0	0	0.00	0.00
10	0.023	0.01	0.01
20	0.050	0.02	0.04
30	0.083	0.04	0.06
40	0.123	0.08	0.11
45	0.147	0.12	0.16
50	0.174	0.20	0.22
60	0.240	0.40	0.44
70	0.330	0.80	0.85

(1) Agrawal, Y.K., Talanta, 20, 1354 (1973).(2) Irving, H.M. and Mahnot, U.S., J. Inorg. Nucl. Chem.,
30, 1215 (1968).

TABLE 2

VALUES OF Δ AT 25°C

$$\Delta = \log U_H^\circ + \log 1/y_+ + \log \frac{[HA]}{[A^-]}$$

	0	10	20	30	40	45	50	60	70
Dioxan, Volume Percent	0	0.023	0.050	0.083	0.123	0.147	0.174	0.240	0.330
Dioxan, Mole Fraction n_2	0	0.023	0.050	0.083	0.123	0.147	0.174	0.240	0.330
[HA] [A ⁻]	Values of Δ								
0.009	0.001	0.97	0.98	0.99	1.02	1.07	1.10	1.19	1.43
0.008	0.002	0.62	0.63	0.65	0.68	0.73	0.77	0.87	1.13
0.007	0.003	0.39	0.41	0.42	0.46	0.51	0.56	0.67	0.93
0.006	0.004	0.20	0.22	0.24	0.28	0.33	0.38	0.48	0.75
0.005	0.005	0.03	0.05	0.07	0.11	0.16	0.22	0.32	0.59
0.004	0.006	-0.14	-0.12	-0.10	-0.06	-0.01	0.05	0.15	0.42
0.003	0.007	-0.33	-0.31	-0.29	-0.25	-0.19	-0.14	-0.03	0.24
0.002	0.008	-0.56	-0.54	-0.52	-0.48	-0.42	-0.37	-0.26	0.02
0.001	0.009	-0.91	-0.89	-0.87	-0.83	-0.77	-0.71	-0.60	-0.32

TABLE 3

DIELECTRIC CONSTANTS OF DIOXAN-WATER MIXTURES AT 25°C.

Dioxan			Harned ⁽¹⁾	Interpolated ⁽²⁾	
% v/v	% w/w	n ₂	D	D	100/D
-	0	0	78.36	-	1.28
10	-	0.023	-	68.5	1.46
-	20	0.048	60.79	-	-
20	-	0.050	-	60.5	1.65
30	-	0.083	-	51.8	1.93
40	-	0.123	-	42.5	2.35
-	45	0.143	38.48 ⁽³⁾	-	-
45	-	0.147	-	37.5	2.67
50	-	0.174	-	33.0	3.03
60	-	0.240	-	25.77	3.88
-	70	0.323	17.69	-	-
70	-	0.330	-	17.54	5.70

(1) Harned, H.S. and Owen, B.B., "The Physical Chemistry of Electrolytic Solutions, " Reinhold, New York, p. 756; 161 (1958).

(2) Agrawal, Y.K., Russ. Chem. Rev., 48, 948 (1979).

(3) King, E.J., "Acid Base Equilibria", Pergamon, London, p. 252 (1965).