VISCOSITIES OF ISOPROPYL AND n-BUTYL ALCOHOLS AT LOW TEMPERATURES.

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The viscosities of isopropyl- and n-butyl alcohols at low temperatures were determined by the present author with the modified Ostwald's vis- cosimeters that were reported in the previous papers.[1],[2]   The results were summarized in Tables 1 and 2, and shown in the accompanying figure.   The

I   Isopropyl-Alcohol.
II   n-Butyl-Alcohol.
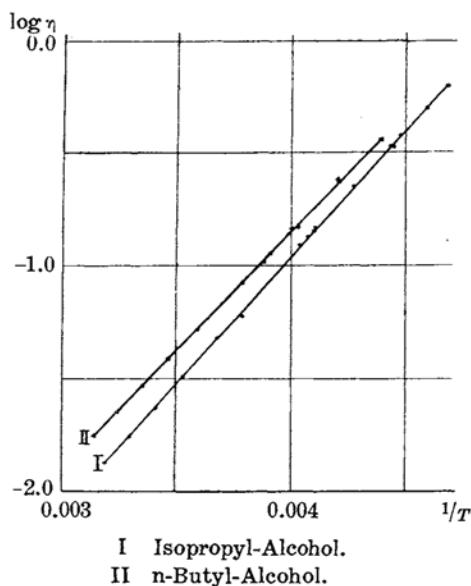
(1) S. Mitsukuri and T. Tonomura, *J. Chem. Soc. of Japan*, **48** (1927), 335.

(2) S. Mitsukuri and T. Tonomura, Ibid., **50** (1929), 120.

densities of the alcohols were taken from the data given by T. Tonomura and K. Uehara.[1] The constants of the viscosimeters were given in Table 4 of the previous paper.

Table 1.

The Viscosities of Isopropyl-alcohol.

Temp. °C	Density	Time of fall sec.	Viscosity C.G.S.	Viscosi- meter
0.00	0.8043	118.10	0.04510	3
− 0.20	0.3045	123.20	0.04706	3
− 6.77	0.8099	155.75	0.05989	3
− 9.38	0.8120	172.30	0.06643	3
−16.32	0.8177	224.58	0.08719	3
−19.15	0.8200	248.40	0.09676	3
−20.40	0.8211	262.83	0.10247	3
−24.07	0.8240	304.47	0.11870	3
−27.48	0.8267	117.74	0.13331	4
−29.29	0.8282	128.57	0.14205	4
−29.50	0.8284	376.29	0.14300	3
−39.14	0.8362	194.47	0.22273	4
−43.80	0.8400	241.17	0.27385	4
−47.36	0.8428	290.35	0.3351	4
−49.83	0.8448	322.43	0.3731	4
−55.33	0.8492	427.77	0.4976	4
−59.83	0.8529	544.30	0.6358	4

Table 2.

The Viscosities of n-Butyl-alcohol.

Temp. °C	Density	Time of fall sec.	Viscosity C.G.S.	Viscosi- meter
0.00	0.8238		0.05186	(Thorpe and Rodger) 3
−14.12	0.8348	211.40	0.08379	3
−20.72	0.8399	90.32	0.10391	4
−22.31	0.8412	281.41	0.11240	3
−22.38	0.8412	95.50	0.11004	4
−29.65	0.8469	124.48	0.14440	4
−30.12	0.8472	126.40	0.14668	4
−40.74	0.8553	199.01	0.23314	4
−40.89	0.8556	197.39	0.23133	4
−50.92	0.8633	305.27	0.36100	4

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(1) T. Tonomura and K. Uehara, this Bulletin, **6** (1931), 118.

The relations between the viscosities and the temperatures were expressed by the following formula, where A, B and C were the constants.

$$\log \eta = -A + B/(T-C)$$

The values of the constants were given in the Table 3.

Table 3.

Alcohol	A	B	C
Isopropyl	5.4727	1127.09	0
n-Butyl	5.0562	1051.65	5.2

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