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The wide application of hydrometers as measuring instruments in the collection of revenues, in commerce, and in the industries makes it very important to define the various scales of indication of these instruments in terms of fundamental units.

The confusion and discordance heretofore resulting from the use of various insufficiently defined hydrometer scales, and the lack of opportunity for verifying standards on a uniform basis, led the bureau to investigate the problems connected with hydrometry and to compile standard density tables for definition of hydrometer scales.

In Bureau Circular No. 16 the conditions are announced under which the testing of hydrometers will be conducted, and specifications are given as to the construction, standardization, and accuracy required for hydrometers in order that they be approved as precision instruments.

The present circular comprises the density tables which have been adopted for definition of hydrometer scales, auxiliary tables which have been prepared for reduction of hydrometer readings, tables for computation of volumetric capacity, and others of similar nature giving physical constants for which the bureau receives frequent inquiries.

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Table 1.—Density of Pure Water Free from Air.

[Under standard pressure (76 cm), at every tenth part of a degree of the international hydrogen scale from 0° to 41° C., referred to water at 4° C. as unity.¹]

Degrees Cent.	Tenths of Degrees										Mean Differences
	0	1	2	3	4	5	6	7	8	9	
0	0.999 8681	8747	8812	8875	8936	8996	9053	9109	9163	9216	+ 59
1	9267	9315	9363	9408	9452	9494	9534	9573	9610	9645	+ 41
2	9679	9711	9741	9769	9796	9821	9844	9866	9887	9905	+ 24
3	9922	9937	9951	9962	9973	9981	9988	9994	9998	*0000	+ 8
4	1.000 0000	*9999	*9996	*9992	*9986	*9979	*9970	*9960	*9947	*9934	- 8
5	0.999 9919	9902	9884	9864	9842	9819	9795	9769	9742	9713	- 24
6	9682	9650	9617	9582	9545	9507	9468	9427	9385	9341	- 39
7	9296	9249	9201	9151	9100	9048	8994	8938	8881	8823	- 53
8	8764	8703	8641	8577	8512	8445	8377	8308	8237	8165	- 67
9	8091	8017	7940	7863	7784	7704	7622	7539	7455	7369	- 81
10	7282	7194	7105	7014	6921	6826	6729	6632	6533	6432	- 95
11	6331	6228	6124	6020	5913	5805	5696	5586	5474	5362	-108
12	5248	5132	5016	4898	4780	4660	4538	4415	4291	4166	-121
13	4040	3912	3784	3654	3523	3391	3257	3122	2986	2850	-133
14	2712	2572	2431	2289	2147	2003	1858	1711	1564	1416	-145
15	1266	1114	0962	0809	0655	0499	0343	0185	0026	*9865	-156
16	0.998 9705	9542	9378	9214	9048	8881	8713	8544	8373	8202	-168
17	8029	7856	7681	7505	7328	7150	6971	6791	6610	6427	-178
18	6244	6058	5873	5686	5498	5309	5119	4927	4735	4541	-190
19	4347	4152	3955	3757	3558	3358	3158	2955	2752	2549	-200
20	2343	2137	1930	1722	1511	1301	1090	0878	0663	0449	-211
21	0233	0016	*0799	*9580	*9359	*9139	*8917	*8694	*8470	*8245	-221
22	0.997 8019	7792	7564	7335	7104	6873	6641	6408	6173	5938	-232
23	5702	5466	5227	4988	4747	4506	4264	4021	3777	3531	-242
24	3286	3039	2790	2541	2291	2040	1788	1535	1280	1026	-252
25	0770	0513	0255	*9997	*9736	*9476	*9214	*8951	*8688	*8423	-261
26	0.996 8158	7892	7624	7356	7087	6817	6545	6273	6000	5726	-271
27	5451	5176	4898	4620	4342	4062	3782	3500	3218	2935	-280
28	2652	2366	2080	1793	1505	1217	0928	0637	0346	0053	-289
29	0.995 9761	9466	9171	8876	8579	8282	7983	7684	7383	7083	-298
30	6780	6478	6174	5869	5564	5258	4950	4642	4334	4024	-307
31	3714	3401	3089	2776	2462	2147	1832	1515	1198	0880	-315
32	0561	0241	*9920	*9599	*9276	*8954	*8630	*8304	*7979	*7653	-324
33	0.994 7325	6997	6668	6338	6007	5676	5345	5011	4678	4343	-332
34	4007	3671	3335	2997	2659	2318	1978	1638	1296	0953	-340
35	0610	0267	*9922	*9576	*9230	*8883	*8534	*8186	*7837	*7486	-347
36	0.993 7136	6784	6432	6078	5725	5369	5014	4658	4301	3943	-355
37	3585	3226	2866	2505	2144	1782	1419	1055	0691	0326	-362
38	0.992 9960	9593	9227	8859	8490	8120	7751	7380	7008	6636	-370
39	6263	5890	5516	5140	4765	4389	4011	3634	3255	2876	-377
40	2497	2116	1734	1352	0971	0587	0203	*9818	*9433	*9047	-384
41	0.991 8661										

¹ According to P. Chappuis, Bureau international des Poids et Mesures, Travaux et Mémoires XIII, 1907.

Table 2.—Density of Mixtures (by weight) of Ethyl Alcohol and Water.

[Recalculated from Mendelejeff's determinations.]

Per Cent Alcohol by Weight	D $\frac{15}{4}$ *	D $\frac{20}{4}$	D $\frac{25}{4}$	Per Cent Alcohol by Weight	D $\frac{15}{4}$ *	D $\frac{20}{4}$	D $\frac{25}{4}$
0	.99913	0.99824	0.99708	50	0.91787	0.91386	0.90983
1	.99725	.99636	.99521	51	.91566	.91164	.90758
2	.99543	.99453	.99338	52	.91344	.90940	.90533
3	.99366	.99274	.99159	53	.91120	.90715	.90307
4	.99197	.99102	.98984	54	.90895	.90488	.90079
5	.99033	.98936	.98815	55	.90670	.90262	.89851
6	.98877	.98776	.98651	56	.90443	.90034	.89622
7	.98726	.98620	.98491	57	.90215	.89805	.89392
8	.98581	.98470	.98336	58	.89987	.89576	.89162
9	.98442	.98325	.98185	59	.89758	.89346	.88931
10	.98307	.98185	.98038	60	.89528	.89115	.88700
11	.98176	.98047	.97893	61	.89297	.88883	.88467
12	.98049	.97913	.97752	62	.89066	.88651	.88234
13	.97925	.97781	.97612	63	.88834	.88418	.88000
14	.97803	.97651	.97474	64	.88601	.88185	.87766
15	.97683	.97522	.97336	65	.88368	.87950	.87530
16	.97563	.97393	.97199	66	.88134	.87716	.87295
17	.97444	.97264	.97061	67	.87899	.87480	.87058
18	.97324	.97134	.96922	68	.87664	.87244	.86821
19	.97203	.97003	.96782	69	.87428	.87008	.86583
20	.97080	.96870	.96640	70	.87192	.86770	.86344
21	.96956	.96736	.96497	71	.86954	.86532	.86105
22	.96829	.96599	.96352	72	.86716	.86292	.85864
23	.96699	.96459	.96203	73	.86477	.86052	.85622
24	.96566	.96317	.96052	74	.86237	.85812	.85380
25	.96430	.96171	.95897	75	.85997	.85570	.85137
26	.96289	.96021	.95739	76	.85755	.85328	.84893
27	.96145	.95868	.95577	77	.85513	.85084	.84648
28	.95997	.95711	.95412	78	.85270	.84840	.84403
29	.95845	.95550	.95244	79	.85026	.84595	.84157
30	.95688	.95385	.95071	80	.84781	.84349	.83909
31	.95526	.95215	.94894	81	.84534	.84101	.83660
32	.95360	.95042	.94713	82	.84286	.83852	.83410
33	.95191	.94865	.94529	83	.84037	.83602	.83159
34	.95017	.94684	.94342	84	.83786	.83350	.82906
35	.94839	.94499	.94152	85	.83534	.83097	.82652
36	.94657	.94311	.93957	86	.83279	.82842	.82396
37	.94471	.94119	.93760	87	.83022	.82583	.82137
38	.94282	.93924	.93560	88	.82762	.82323	.81876
39	.94089	.93725	.93356	89	.82500	.82060	.81613
40	.93893	.93524	.93151	90	.82235	.81795	.81348
41	.93694	.93320	.92943	91	.81966	.81527	.81080
42	.93491	.93113	.92732	92	.81694	.81255	.80809
43	.93286	.92904	.92519	93	.81418	.80979	.80534
44	.93078	.92693	.92305	94	.81138	.80700	.80256
45	.92868	.92480	.92088	95	.80854	.80417	.79974
46	.92655	.92264	.91870	96	.80564	.80129	.79689
47	.92441	.92047	.91650	97	.80271	.79838	.79400
48	.92225	.91823	.91429	98	.79972	.79541	.79106
49	.92006	.91608	.91207	99	.79668	.79240	.78809
50	.91787	.91386	.90983	100	.79358	.78933	.78507

* D $\frac{15}{4}$ = Density at 15° C. referred to water at 4° C. as unity.

The basis for the preparation of the above table is the experimental work of Mendelejeff.² His calculated values have been supplemented for the purpose of interpolation by the use of Formulas XIII and XV, derived by him. The series of values thus obtained have been corrected for the difference between the values of the density of water assumed by Mendelejeff and those accepted at the present time. They have further been corrected so that the temperatures apply to the scale of the International Hydrogen Thermometer. For this purpose the temperature scale of the thermometer used by Mendelejeff as a standard has been assumed equivalent to that of Geissler thermometer No. 1856, investigated by Fr. Grutzmacher,³ both thermometers being by the same maker apparently at about the same time, and hence very probably differing from the hydrogen scale by approximately the same amount.

Table 3.—Density of Mixtures (by weight) of Ethyl Alcohol and Water at $\frac{20^{\circ}}{4^{\circ}}$ C.

[This table is derived by interpolation from Table 2, based upon the experimental data of Mendelejeff.]

Per Cent Alcohol by Weight	Tenths of Per Cent									
	0	1	2	3	4	5	6	7	8	9
0	0.99824	804	786	767	748	729	710	692	673	654
1	.99636	617	599	580	562	544	525	507	489	471
2	.99453	434	417	399	381	363	345	327	310	292
3	.99274	257	240	222	205	188	171	154	136	119
4	.99102	086	069	052	035	019	002	*986	*969	*952
5	.98936	920	904	887	871	855	839	823	807	791
6	.98776	760	744	729	713	697	682	666	651	636
7	.98620	605	590	575	560	545	530	515	500	485
8	.98470	456	441	426	412	397	383	368	354	340
9	.98325	311	297	283	269	255	241	227	213	199
10	.98185	171	157	143	130	116	102	088	074	061
11	.98047	034	020	006	*993	*979	*966	*953	*939	*926
12	.97913	899	886	873	860	846	833	820	807	794
13	.97781	768	755	742	728	715	702	689	676	663
14	.97651	638	625	612	599	586	573	560	547	535
15	.97522	509	496	483	470	457	444	432	419	406
16	.97393	380	367	354	341	328	316	303	290	277
17	.97264	251	235	225	212	199	186	173	160	147
18	.97134	121	108	095	082	068	055	042	029	016
19	.97003	*989	*976	*963	*950	*936	*923	*910	*896	*883
20	.96870	856	843	830	816	803	790	776	763	749
21	.96736	722	708	695	681	668	654	640	626	613
22	.96599	585	571	557	544	530	516	502	488	473
23	.96459	445	431	417	403	388	374	360	346	331
24	.96317	302	288	273	259	244	230	215	200	186
25	.96171	156	141	126	111	096	081	066	051	036
26	.96021	006	*991	*975	*960	*945	*929	*914	*899	*883
27	.95868	852	837	821	806	790	774	759	743	727
28	.95711	695	679	663	647	631	615	599	583	566
29	.95550	534	518	501	485	468	452	435	419	402
30	.95385	369	352	335	318	301	284	267	250	232
31	.95215	198	181	164	146	129	112	094	077	059
32	.95042	024	007	*989	*971	*954	*936	*918	*900	*883
33	.94865	847	829	811	793	775	757	739	720	702
34	.94684	666	647	629	611	592	574	555	537	518
35	.94499	481	462	443	424	406	386	368	349	330
36	.94311	292	272	253	234	215	196	176	157	138
37	.94119	099	080	061	041	022	002	*983	*963	*944
38	.93924	904	884	864	845	825	805	785	765	745
39	.93725	705	685	665	645	625	605	585	565	545
40	.93524	504	484	464	443	423	402	382	362	341
41	.93320	300	279	259	238	217	196	176	155	134
42	.93113	092	072	051	030	009	*988	*967	*946	*925
43	.92904	883	862	841	820	799	778	757	736	714
44	.92693	672	651	629	608	587	566	544	523	501
45	.92480	458	437	415	394	372	351	329	308	286
46	.92264	243	221	199	178	156	134	112	091	069
47	.92047	025	004	*982	*960	*938	*916	*894	*872	*850
48	.91828	806	784	762	740	718	696	674	652	630
49	.91608	586	564	542	519	497	475	453	431	408
50	.91386	364	342	319	297	275	253	230	208	186

Table 4.—Specific Gravity of Mixtures (by volume) of Ethyl Alcohol and Water at
 60° F. ($15^{\circ}56$ C.).

[This table, derived by calculation and interpolation from Table 2, based on the experimental data of Mendelejeff, is the basis for standardizing hydrometers graduated to indicate per cent of alcohol by volume.]

Per Cent Alcohol by Volume at 60° F.	Tenths of Per Cent									
	0	1	2	3	4	5	6	7	8	9
0	1.00000	*985	*970	*954	*940	*924	*910	*894	*880	*865
1	.99850	835	820	805	791	776	761	747	732	718
2	.99703	688	674	660	645	631	616	602	588	574
3	.99560	545	531	517	503	489	475	461	447	433
4	.99419	405	392	378	364	350	337	323	310	296
5	.99283	269	256	243	230	216	203	190	177	164
6	.99150	137	124	111	098	086	073	060	047	034
7	.99022	009	*996	*984	*971	*959	*946	*934	*922	*909
8	.98897	885	872	860	848	836	824	812	800	788
9	.98776	764	752	740	728	716	705	693	681	670
10	.98658	646	635	623	612	600	589	578	566	555
11	.98544	532	521	510	499	488	477	466	454	444
12	.98432	422	410	400	389	378	367	356	345	334
13	.98324	313	302	291	281	270	259	249	238	227
14	.98217	206	195	185	175	164	154	144	133	123
15	.98112	102	092	082	071	061	051	040	030	020
16	.98010	000	*089	*079	*069	*059	*049	*039	*028	*018
17	.97908	898	888	878	868	858	848	838	828	818
18	.97808	798	788	778	768	758	748	738	728	718
19	.97708	698	688	678	668	658	648	637	627	617
20	.97607	597	587	577	567	557	547	537	527	517
21	.97507	497	487	477	466	456	446	436	426	416
22	.97406	396	386	375	365	355	345	334	324	314
23	.97304	294	283	273	263	252	242	232	221	211
24	.97200	190	180	169	159	148	138	127	117	106
25	.97096	085	074	064	053	043	032	022	011	000
26	.96990	979	968	957	946	936	925	914	903	892
27	.96881	870	859	848	837	826	815	804	792	781
28	.96770	759	748	736	725	714	702	691	679	668
29	.96656	645	633	622	610	599	587	575	564	552
30	.96540	528	516	504	492	481	469	456	444	432
31	.96420	408	396	384	372	359	347	335	322	310
32	.96297	285	272	260	248	235	222	210	197	184
33	.96172	159	146	133	120	107	094	082	068	055
34	.96042	029	016	003	*990	*976	*963	*950	*936	*923
35	.95909	896	882	868	855	841	827	814	800	786
36	.95772	758	744	730	716	702	688	673	659	645
37	.95630	616	602	587	573	558	544	529	515	500
38	.95485	471	456	441	426	412	397	382	367	352
39	.95337	322	306	291	276	261	246	230	215	200
40	.95184	168	153	137	122	106	090	075	059	043
41	.95027	011	*995	*979	*963	*947	*931	*915	*899	*883
42	.94866	850	834	817	801	784	768	751	735	718
43	.94702	685	668	651	634	618	601	584	567	550
44	.94532	515	498	481	464	447	429	412	395	377
45	.94360	342	325	307	290	272	254	236	219	201
46	.94183	165	147	129	111	093	076	058	039	021
47	.94003	*985	*967	*948	*930	*912	*893	*875	*856	*838
48	.93819	801	782	764	745	727	707	688	670	651
49	.93632	613	594	575	556	536	517	498	479	460
50	.93440	421	402	382	363	343	324	304	285	265

Table 5.—Per Cents by Volume at 60° F., corresponding to Various Per Cents by Weight in Mixtures of Ethyl Alcohol and Water.

Per Cent Alcohol by Weight	Tenths of Per Cent									
	0	1	2	3	4	5	6	7	8	9
0	0.00	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.01	1.13
1	1.26	1.38	1.51	1.63	1.76	1.88	2.01	2.13	2.26	2.38
2	2.51	2.63	2.76	2.88	3.01	3.13	3.26	3.38	3.51	3.63
3	3.76	3.88	4.01	4.13	4.26	4.38	4.50	4.63	4.75	4.88
4	5.00	5.13	5.25	5.37	5.50	5.62	5.75	5.87	5.99	6.12
5	6.24	6.37	6.49	6.61	6.74	6.86	6.98	7.11	7.23	7.36
6	7.48	7.60	7.73	7.85	7.97	8.10	8.22	8.34	8.47	8.59
7	8.71	8.84	8.96	9.08	9.20	9.33	9.45	9.57	9.70	9.82
8	9.94	10.07	10.19	10.31	10.43	10.56	10.68	10.80	10.92	11.05
9	11.17	11.29	11.41	11.54	11.66	11.78	11.90	12.03	12.15	12.27
10	12.39	12.52	12.64	12.76	12.88	13.00	13.13	13.25	13.37	13.49
11	13.62	13.74	13.86	13.98	14.10	14.22	14.35	14.47	14.59	14.71
12	14.83	14.95	15.08	15.20	15.32	15.44	15.56	15.68	15.81	15.93
13	16.05	16.17	16.29	16.41	16.53	16.66	16.78	16.90	17.02	17.14
14	17.26	17.38	17.50	17.62	17.75	17.87	17.99	18.11	18.23	18.35
15	18.47	18.59	18.71	18.83	18.95	19.08	19.20	19.32	19.44	19.56
16	19.68	19.80	19.92	20.04	20.16	20.28	20.40	20.52	20.64	20.76
17	20.88	21.00	21.12	21.24	21.36	21.48	21.60	21.72	21.84	21.96
18	22.08	22.20	22.32	22.44	22.56	22.68	22.80	22.92	23.04	23.16
19	23.28	23.40	23.52	23.64	23.76	23.88	24.00	24.12	24.24	24.36
20	24.48	24.59	24.71	24.83	24.95	25.07	25.19	25.31	25.43	25.55
21	25.67	25.78	25.90	26.02	26.14	26.26	26.38	26.50	26.62	26.73
22	26.85	26.97	27.09	27.21	27.33	27.44	27.56	27.68	27.80	27.92
23	28.04	28.15	28.27	28.39	28.51	28.62	28.74	28.86	28.98	29.10
24	29.21	29.33	29.45	29.57	29.68	29.80	29.92	30.03	30.15	30.27
25	30.39	30.50	30.62	30.74	30.85	30.97	31.09	31.21	31.32	31.44
26	31.56	31.67	31.79	31.91	32.02	32.14	32.26	32.37	32.49	32.60
27	32.72	32.84	32.95	33.07	33.18	33.30	33.42	33.53	33.65	33.76
28	33.88	34.00	34.11	34.23	34.34	34.46	34.57	34.69	34.80	34.92
29	35.03	35.15	35.26	35.38	35.49	35.61	35.72	35.84	35.95	36.07
30	36.18	36.30	36.41	36.52	36.64	36.75	36.87	36.98	37.10	37.21
31	37.32	37.44	37.55	37.67	37.78	37.89	38.01	38.12	38.23	38.35
32	38.46	38.58	38.69	38.80	38.91	39.03	39.14	39.25	39.37	39.48
33	39.59	39.71	39.82	39.93	40.04	40.16	40.27	40.38	40.49	40.61
34	40.72	40.83	40.94	41.05	41.17	41.28	41.39	41.50	41.61	41.72
35	41.84	41.95	42.06	42.17	42.28	42.39	42.50	42.62	42.73	42.84
36	42.95	43.06	43.17	43.28	43.39	43.50	43.61	43.72	43.83	43.94
37	44.06	44.16	44.27	44.38	44.49	44.60	44.71	44.82	44.93	45.04
38	45.15	45.26	45.37	45.48	45.59	45.70	45.81	45.92	46.03	46.14
39	46.25	46.36	46.46	46.57	46.68	46.79	46.90	47.01	47.12	47.23
40	47.33	47.44	47.55	47.66	47.77	47.87	47.98	48.09	48.20	48.31
41	48.41	48.52	48.63	48.74	48.84	48.95	49.06	49.17	49.27	49.38
42	49.49	49.59	49.70	49.81	49.91	50.02	50.13	50.23	50.34	50.45
43	50.55	50.66	50.77	50.87	50.98	51.08	51.19	51.30	51.40	51.51
44	51.61	51.72	51.82	51.93	52.04	52.14	52.25	52.35	52.46	52.56
45	52.67	52.77	52.88	52.98	53.09	53.19	53.30	53.40	53.51	53.61
46	53.72	53.82	53.92	54.03	54.13	54.24	54.34	54.44	54.55	54.65
47	54.76	54.86	54.96	55.07	55.17	55.27	55.38	55.48	55.58	55.69
48	55.79	55.89	55.99	56.10	56.20	56.30	56.41	56.51	56.61	56.71
49	56.82	56.92	57.02	57.12	57.22	57.33	57.43	57.53	57.63	57.73
50	57.84	57.94	58.04	58.14	58.24	58.34	58.45	58.55	58.65	58.75

Table 5.—Per Cents by Volume at 60° F., Corresponding to Various Per Cents by Weight in Mixtures of Ethyl Alcohol and Water—Continued.

Per Cent Alcohol by Weight	Tenths of Per Cent									
	0	1	2	3	4	5	6	7	8	9
50	57.84	57.94	58.04	58.14	58.24	58.34	58.45	58.55	58.65	58.75
51	58.85	58.95	59.05	59.15	59.26	59.36	59.46	59.56	59.66	59.76
52	59.86	59.96	60.06	60.16	60.26	60.36	60.46	60.56	60.66	60.76
53	60.86	60.96	61.06	61.16	61.26	61.36	61.46	61.56	61.66	61.76
54	61.86	61.96	62.05	62.15	62.25	62.35	62.45	62.55	62.65	62.75
55	62.85	62.94	63.04	63.14	63.24	63.34	63.44	63.53	63.63	63.73
56	63.83	63.93	64.02	64.12	64.22	64.32	64.41	64.51	64.61	64.71
57	64.80	64.90	65.00	65.10	65.19	65.29	65.39	65.48	65.58	65.68
58	65.77	65.87	65.97	66.06	66.16	66.26	66.35	66.45	66.55	66.64
59	66.74	66.83	66.93	67.03	67.12	67.22	67.31	67.41	67.50	67.60
60	67.70	67.79	67.88	67.98	68.08	68.17	68.26	68.36	68.46	68.55
61	68.64	68.74	68.83	68.93	69.02	69.12	69.21	69.31	69.40	69.50
62	69.59	69.68	69.78	69.87	69.97	70.06	70.15	70.25	70.34	70.43
63	70.53	70.62	70.71	70.81	70.90	70.99	71.09	71.18	71.27	71.37
64	71.46	71.55	71.64	71.74	71.83	71.92	72.02	72.11	72.20	72.29
65	72.38	72.48	72.57	72.66	72.75	72.84	72.94	73.03	73.12	73.21
66	73.30	73.40	73.49	73.58	73.67	73.76	73.85	73.94	74.03	74.12
67	74.22	74.31	74.40	74.49	74.58	74.67	74.76	74.85	74.94	75.03
68	75.12	75.21	75.30	75.39	75.48	75.57	75.66	75.75	75.84	75.93
69	76.02	76.11	76.20	76.29	76.38	76.47	76.56	76.65	76.74	76.83
70	76.92	77.00	77.09	77.18	77.27	77.36	77.45	77.54	77.62	77.71
71	77.80	77.89	77.98	78.06	78.15	78.24	78.33	78.42	78.50	78.59
72	78.68	78.77	78.85	78.94	79.03	79.12	79.20	79.29	79.38	79.47
73	79.55	79.64	79.73	79.81	79.90	79.99	80.07	80.16	80.25	80.33
74	80.42	80.50	80.59	80.68	80.76	80.85	80.93	81.02	81.11	81.19
75	81.28	81.36	81.45	81.53	81.62	81.70	81.79	81.87	81.96	82.04
76	82.13	82.21	82.30	82.38	82.47	82.55	82.64	82.72	82.81	82.89
77	82.98	83.06	83.14	83.23	83.31	83.40	83.48	83.56	83.65	83.73
78	83.81	83.90	83.98	84.06	84.15	84.23	84.31	84.40	84.48	84.56
79	84.64	84.73	84.81	84.89	84.98	85.06	85.14	85.22	85.30	85.39
80	85.47	85.55	85.63	85.71	85.80	85.88	85.96	86.04	86.12	86.20
81	86.29	86.37	86.45	86.53	86.61	86.69	86.77	86.85	86.93	87.01
82	87.10	87.18	87.26	87.34	87.42	87.50	87.58	87.66	87.74	87.82
83	87.90	87.98	88.05	88.13	88.21	88.29	88.37	88.45	88.53	88.61
84	88.69	88.77	88.85	88.92	89.00	89.08	89.16	89.24	89.32	89.40
85	89.47	89.55	89.63	89.71	89.78	89.86	89.94	90.02	90.10	90.17
86	90.25	90.33	90.40	90.48	90.56	90.63	90.71	90.79	90.86	90.94
87	91.02	91.09	91.17	91.25	91.32	91.40	91.47	91.55	91.62	91.70
88	91.78	91.85	91.93	92.00	92.08	92.15	92.22	92.30	92.37	92.45
89	92.52	92.60	92.67	92.75	92.82	92.89	92.97	93.04	93.12	93.19
90	93.26	93.34	93.41	93.48	93.55	93.63	93.70	93.77	93.85	93.92
91	93.99	94.06	94.14	94.21	94.28	94.35	94.42	94.49	94.57	94.64
92	94.71	94.78	94.85	94.92	94.99	95.06	95.13	95.20	95.27	95.34
93	95.42	95.48	95.55	95.62	95.69	95.76	95.83	95.90	95.97	96.04
94	96.11	96.18	96.25	96.31	96.38	96.45	96.52	96.59	96.65	96.72
95	96.79	96.86	96.92	96.99	97.06	97.13	97.19	97.26	97.33	97.39
96	97.46	97.53	97.59	97.66	97.72	97.79	97.85	97.92	97.98	98.05
97	98.12	98.18	98.24	98.31	98.37	98.44	98.50	98.57	98.63	98.69
98	98.76	98.82	98.88	98.95	99.01	99.07	99.14	99.20	99.26	99.32
99	99.39	99.45	99.51	99.57	99.63	99.69	99.75	99.82	99.88	99.94
100	100.00									

Table 6.—Reduction of Per Cents by Volume to Per Cents by Weight for Mixtures of Ethyl Alcohol and Water.

Per Cent Alcohol by Volume at 60° F.	Per Cent Alcohol by Weight	Differences	Per Cent Alcohol by Volume at 60° F.	Per Cent Alcohol by Weight	Differences	Per Cent Alcohol by Volume at 60° F.	Per Cent Alcohol by Weight	Differences	Per Cent Alcohol by Volume at 60° F.	Per Cent Alcohol by Weight	Differences
0	0.00	0.80	25	20.44	0.84	50	42.48	0.94	75	67.86	1.12
1	0.80	.79	26	21.28	.84	51	43.42	.95	76	68.98	1.12
2	1.59	.80	27	22.12	.85	52	44.37	.95	77	70.10	1.13
3	2.39	.81	28	22.97	.85	53	45.32	.95	78	71.23	1.14
4	3.20	.80	29	23.82	.85	54	46.27	.97	79	72.37	1.15
5	4.00	.80	30	24.67	.85	55	47.24	.96	80	73.52	1.16
6	4.80	.81	31	25.52	.86	56	48.20	.98	81	74.68	1.17
7	5.61	.81	32	26.38	.86	57	49.18	.98	82	75.85	1.18
8	6.42	.81	33	27.24	.86	58	50.16	.99	83	77.03	1.19
9	7.23	.82	34	28.10	.87	59	51.15	.99	84	78.22	1.21
10	8.05	.81	35	28.97	.87	60	52.14	1.00	85	79.43	1.22
11	8.86	.82	36	29.84	.88	61	53.14	1.00	86	80.65	1.23
12	9.68	.82	37	30.72	.87	62	54.14	1.02	87	81.88	1.25
13	10.50	.82	38	31.59	.89	63	55.16	1.02	88	83.13	1.27
14	11.32	.82	39	32.48	.88	64	56.18	1.02	89	84.40	1.28
15	12.14	.82	40	33.36	.89	65	57.20	1.03	90	85.68	1.30
16	12.96	.82	41	34.25	.90	66	58.23	1.04	91	86.98	1.32
17	13.78	.83	42	35.15	.89	67	59.27	1.05	92	88.30	1.34
18	14.61	.83	43	36.04	.91	68	60.32	1.06	93	89.64	1.37
19	15.44	.83	44	36.95	.91	69	61.38	1.06	94	91.01	1.40
20	16.27	.83	45	37.86	.92	70	62.44	1.07	95	92.41	1.43
21	17.10	.83	46	38.78	.91	71	63.51	1.07	96	93.84	1.47
22	17.93	.83	47	39.69	.93	72	64.58	1.09	97	95.31	1.51
23	18.76	.84	48	40.62	.92	73	65.67	1.09	98	96.82	1.56
24	19.60	.84	49	41.54	.94	74	66.76	1.10	99	98.38	1.62
25	20.44	.84	50	42.48		75	67.86	1.12	100	100.00	

Table 7.—Temperature Corrections to Saccharometer Readings (Standard at 20° C.).

[This table is calculated using the data on thermal expansion of sugar solutions by Plato,⁴ assuming the instrument to be of Jena 16^{III} glass. The table should be used with caution and only for approximate results when the temperature differs much from the standard temperature or from the temperature of the surrounding air.]

Temperature in Degrees Centigrade	Observed Per Cent of Sugar													
	0	5	10	15	20	25	30	35	40	45	50	55	60	70
	Subtract from Observed Per Cent													
0	0.30	0.49	0.65	0.77	0.89	0.99	1.08	1.16	1.24	1.31	1.37	1.41	1.44	1.49
5	.36	.47	.56	.65	.73	.80	.86	.91	.97	1.01	1.05	1.08	1.10	1.14
10	.32	.38	.43	.48	.52	.57	.60	.64	.67	.70	.72	.74	.75	.77
11	.31	.35	.40	.44	.48	.51	.55	.58	.60	.63	.65	.66	.68	.70
12	.29	.32	.36	.40	.43	.46	.50	.52	.54	.56	.58	.59	.60	.62
13	.26	.29	.32	.35	.38	.41	.44	.46	.48	.49	.51	.52	.53	.55
14	.24	.26	.29	.31	.34	.36	.38	.40	.41	.42	.44	.45	.46	.47
15	.20	.22	.24	.26	.28	.30	.32	.33	.34	.36	.36	.37	.38	.39
16	.17	.18	.20	.22	.23	.25	.26	.27	.28	.28	.29	.30	.31	.32
17	.13	.14	.15	.16	.18	.19	.20	.20	.21	.21	.22	.23	.23	.24
18	.09	.10	.10	.11	.12	.13	.13	.14	.14	.14	.15	.15	.15	.16
19	.05	.05	.05	.06	.06	.06	.07	.07	.07	.07	.08	.08	.08	.08
17.5	.11	.12	.12	.14	.15	.16	.16	.17	.17	.18	.18	.19	.19	.20
15.56 (60° F)	.18	.20	.22	.24	.26	.28	.29	.30	.30	.32	.33	.33	.34	.34
	Add to Observed Per Cent													
21	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.09
22	.10	.10	.11	.12	.12	.13	.14	.14	.15	.15	.16	.16	.16	.16
23	.16	.16	.17	.17	.19	.20	.21	.21	.22	.23	.24	.24	.24	.24
24	.21	.22	.23	.24	.26	.27	.28	.29	.30	.31	.32	.32	.32	.32
25	.27	.28	.30	.31	.32	.34	.35	.36	.38	.38	.39	.39	.40	.39
26	.33	.34	.36	.37	.40	.40	.42	.44	.46	.47	.47	.48	.48	.48
27	.40	.41	.42	.44	.46	.48	.50	.52	.54	.54	.55	.56	.56	.56
28	.46	.47	.49	.51	.54	.56	.58	.60	.61	.62	.63	.64	.64	.64
29	.54	.55	.56	.59	.61	.63	.66	.68	.70	.70	.71	.72	.72	.72
30	.61	.62	.63	.66	.68	.71	.73	.76	.78	.78	.79	.80	.80	.81
35	.99	1.01	1.02	1.06	1.10	1.13	1.16	1.18	1.20	1.21	1.22	1.22	1.23	1.22
40	1.42	1.45	1.47	1.51	1.54	1.57	1.60	1.62	1.64	1.65	1.65	1.65	1.66	1.65
45	1.91	1.94	1.96	2.00	2.03	2.05	2.07	2.09	2.10	2.10	2.10	2.10	2.10	2.08
50	2.46	2.48	2.50	2.53	2.56	2.57	2.58	2.59	2.59	2.58	2.58	2.57	2.56	2.52
55	3.05	3.07	3.09	3.12	3.12	3.12	3.12	3.11	3.10	3.08	3.07	3.05	3.03	2.97
60	3.69	3.72	3.73	3.73	3.72	3.70	3.67	3.65	3.62	3.60	3.57	3.54	3.50	3.43
27.5	0.43	0.44	0.46	0.48	0.50	0.52	0.54	0.56	0.58	0.58	0.59	0.60	0.60	0.60

⁴Wiss. Abh. der Kaiserlichen Normal-Eichungs-Kommission, Vol. 2, p. 140; 1900.

Table 8.—Density⁵ of Solutions of Cane Sugar at 20° C.

[This table is the basis for standardizing hydrometers indicating per cent of sugar at 20° C.]

Per Cent Sugar	Tenths of Per Cent									
	0	1	2	3	4	5	6	7	8	9
0	0.998234	0.998622	0.999010	0.999398	0.999786	1.000174	1.000563	1.000952	1.001342	1.001731
1	1.002120	1.002509	1.002897	1.003286	1.003675	1.004064	1.004453	1.004844	1.005234	1.005624
2	1.006015	1.006405	1.006796	1.007188	1.007580	1.007972	1.008363	1.008755	1.009148	1.009541
3	1.009934	1.010327	1.010721	1.011115	1.011510	1.011904	1.012298	1.012694	1.013089	1.013485
4	1.013881	1.014277	1.014673	1.015070	1.015467	1.015864	1.016261	1.016659	1.017058	1.017456
5	1.017854	1.018253	1.018652	1.019052	1.019451	1.019851	1.020251	1.020651	1.021053	1.021454
6	1.021855	1.022257	1.022659	1.023061	1.023463	1.023867	1.024270	1.024673	1.025077	1.025481
7	1.025885	1.026289	1.026694	1.027099	1.027504	1.027910	1.028316	1.028722	1.029128	1.029535
8	1.029942	1.030349	1.030757	1.031165	1.031573	1.031982	1.032391	1.032800	1.033209	1.033619
9	1.034029	1.034439	1.034850	1.035260	1.035671	1.036082	1.036494	1.036906	1.037318	1.037730
10	1.038143	1.038556	1.038970	1.039383	1.039797	1.040212	1.040626	1.041041	1.041456	1.041872
11	1.042288	1.042704	1.043121	1.043537	1.043954	1.044370	1.044783	1.045206	1.045625	1.046043
12	1.046462	1.046881	1.047300	1.047720	1.048140	1.048559	1.048980	1.049401	1.049822	1.050243
13	1.050665	1.051087	1.051510	1.051933	1.052356	1.052778	1.053202	1.053626	1.054050	1.054475
14	1.054900	1.055325	1.055751	1.056176	1.056602	1.057029	1.057455	1.057882	1.058310	1.058737
15	1.059165	1.059593	1.060022	1.060451	1.060880	1.061308	1.061738	1.062168	1.062598	1.063029
16	1.063460	1.063892	1.064324	1.064756	1.065188	1.065621	1.066054	1.066487	1.066921	1.067355
17	1.067789	1.068223	1.068658	1.069093	1.069529	1.069964	1.070400	1.070836	1.071273	1.071710
18	1.072147	1.072585	1.073023	1.073461	1.073900	1.074338	1.074777	1.075217	1.075657	1.076097
19	1.076537	1.076978	1.077419	1.077860	1.078302	1.078744	1.079187	1.079629	1.080072	1.080515
20	1.080959	1.081403	1.081848	1.082292	1.082737	1.083182	1.083628	1.084074	1.084520	1.084967
21	1.085414	1.085861	1.086309	1.086757	1.087205	1.087652	1.088101	1.088550	1.089000	1.089450
22	1.089900	1.090351	1.090802	1.091253	1.091704	1.092155	1.092607	1.093060	1.093513	1.093966
23	1.094420	1.094874	1.095328	1.095782	1.096236	1.096691	1.097147	1.097603	1.098058	1.098514
24	1.098971	1.099428	1.099886	1.100344	1.100802	1.101259	1.101718	1.102177	1.102637	1.103097
25	1.103557	1.104017	1.104478	1.104938	1.105400	1.105862	1.106324	1.106786	1.107248	1.107711
26	1.108175	1.108639	1.109103	1.109568	1.110033	1.110497	1.110963	1.111429	1.111895	1.112361
27	1.112828	1.113295	1.113763	1.114229	1.114697	1.115166	1.115635	1.116104	1.116572	1.117042
28	1.117512	1.117982	1.118453	1.118923	1.119395	1.119867	1.120339	1.120812	1.121284	1.121757
29	1.122231	1.122705	1.123179	1.123653	1.124128	1.124603	1.125079	1.125555	1.126030	1.126507
30	1.126984	1.127461	1.127939	1.128417	1.128896	1.129374	1.129853	1.130332	1.130812	1.131292
31	1.131773	1.132254	1.132735	1.133216	1.133698	1.134180	1.134663	1.135146	1.135628	1.136112
32	1.136596	1.137080	1.137565	1.138049	1.138534	1.139020	1.139506	1.139993	1.140479	1.140966
33	1.141453	1.141941	1.142429	1.142916	1.143405	1.143894	1.144384	1.144874	1.145363	1.145854
34	1.146345	1.146836	1.147328	1.147820	1.148313	1.148805	1.149298	1.149792	1.150286	1.150780
35	1.151275	1.151770	1.152265	1.152760	1.153256	1.153752	1.154249	1.154746	1.155242	1.155740
36	1.156238	1.156736	1.157235	1.157733	1.158233	1.158733	1.159233	1.159733	1.160233	1.160734
37	1.161236	1.161738	1.162240	1.162742	1.163245	1.163748	1.164252	1.164756	1.165259	1.165764
38	1.166269	1.166775	1.167281	1.167786	1.168293	1.168800	1.169307	1.169815	1.170322	1.170831
39	1.171340	1.171849	1.172359	1.172869	1.173379	1.173889	1.174400	1.174911	1.175423	1.175935
40	1.176447	1.176960	1.177473	1.177987	1.178501	1.179014	1.179527	1.180044	1.180560	1.181076
41	1.181592	1.182108	1.182625	1.183142	1.183660	1.184178	1.184696	1.185215	1.185734	1.186253
42	1.186773	1.187293	1.187814	1.188335	1.188856	1.189379	1.189901	1.190423	1.190946	1.191469
43	1.191993	1.192517	1.193041	1.193565	1.194090	1.194616	1.195141	1.195667	1.196193	1.196720
44	1.197247	1.197775	1.198303	1.198832	1.199360	1.199890	1.200420	1.200950	1.201480	1.202010
45	1.202540	1.203071	1.203603	1.204136	1.204668	1.205200	1.205733	1.206266	1.206801	1.207335
46	1.207870	1.208405	1.208940	1.209477	1.210013	1.210549	1.211086	1.211623	1.212162	1.212700
47	1.213238	1.213777	1.214317	1.214856	1.215395	1.215936	1.216476	1.217017	1.217559	1.218101
48	1.218643	1.219183	1.219729	1.220272	1.220815	1.221360	1.221904	1.222449	1.222995	1.223540
49	1.224086	1.224632	1.225180	1.225727	1.226274	1.226823	1.227371	1.227919	1.228469	1.229018
50	1.229567	1.230117	1.230668	1.231219	1.231770	1.232322	1.232874	1.233426	1.233979	1.234532

⁵According to Dr. F. Plato (Kaiserlichen Normal-Eichungs-Kommission, Wiss. Abh., vol. 2, p. 153; 1900).

Table 9.—Density of Solutions of Sulphuric Acid (H_2SO_4) at 20°C .[Calculated from Dr. J. Domke's table.⁶ Adopted as the basis for standardization of hydrometers indicating per cent of sulphuric acid at 20°C .]

Per Cent H_2SO_4	$D_{\frac{20}{4}}^\circ \text{C}$.	Per Cent H_2SO_4	$D_{\frac{20}{4}}^\circ \text{C}$.	Per Cent H_2SO_4	$D_{\frac{20}{4}}^\circ \text{C}$.
0	0.99823	50	1.39505	91.0	1.81950
1	1.00506	51	1.40487	91.2	1.82045
2	1.01178	52	1.41481	91.4	1.82137
3	1.01839	53	1.42487	91.6	1.82227
4	1.02500	54	1.43503	91.8	1.82315
5	1.03168	55	1.44530	92.0	1.82401
6	1.03843	56	1.45568	92.2	1.82484
7	1.04527	57	1.46615	92.4	1.82564
8	1.05216	58	1.47673	92.6	1.82641
9	1.05909	59	1.48740	92.8	1.82717
10	1.06609	60	1.49818	93.0	1.82790
11	1.07314	61	1.50904	93.2	1.82860
12	1.08026	62	1.51999	93.4	1.82928
13	1.08744	63	1.53102	93.6	1.82993
14	1.09468	64	1.54213	93.8	1.83055
15	1.10199	65	1.55333	94.0	1.83115
16	1.10936	66	1.56460	94.2	1.83172
17	1.11679	67	1.57595	94.4	1.83226
18	1.12428	68	1.58739	94.6	1.83276
19	1.13183	69	1.59890	94.8	1.83324
20	1.13943	70	1.61048	95.0	1.83368
21	1.14709	71	1.62213	95.1	1.83389
22	1.15480	72	1.63384	95.2	1.83410
23	1.16258	73	1.64560	95.3	1.83430
24	1.17041	74	1.65738	95.4	1.83449
25	1.17830	75	1.66917	95.5	1.83469
26	1.18624	76	1.68095	95.6	1.83486
27	1.19423	77	1.69268	95.7	1.83503
28	1.20227	78	1.70433	95.8	1.83520
29	1.21036	79	1.71585	95.9	1.83534
30	1.21850	80	1.72717	96.0	1.83548
31	1.22669	81	1.73827	96.1	1.83560
32	1.23492	82	1.74904	96.2	1.83572
33	1.24320	83	1.75943	96.3	1.83584
34	1.25154	84	1.76932	96.4	1.83594
35	1.25992	85	1.77860	96.5	1.83604
36	1.26836	85.5	1.78300	96.6	1.83613
37	1.27685	86	1.78821	96.7	1.83621
38	1.28543	86.5	1.79124	96.8	1.83628
39	1.29407	87	1.79509	96.9	1.83634
40	1.30278	87.5	1.79875	97.0	1.83637
41	1.31157	88	1.80223	97.1	1.83639
42	1.32043	88.5	1.80552	97.2	1.83640
43	1.32938	89	1.80864	97.3	1.83640
44	1.33843	89.5	1.81159	97.4	1.83639
45	1.34759	90	1.81438	97.5	1.83637
46	1.35686	90.2	1.81545	97.6	1.83634
47	1.36625	90.4	1.81650	97.7	1.83629
48	1.37574	90.6	1.81753	97.8	1.83623
49	1.38533	90.8	1.81853	97.9	1.83615
50	1.39505	91.0	1.81950	98.0	1.83605

⁶Wissenschaftliche Abhandlungen der Kaiserlichen Normal-Eichungs-Kommission, vol. 5, p. 131, 1900.

Table 10.—Temperature Corrections to Per Cent of Sulphuric Acid Determined by Hydrometer (Standard at 20° C.).

[Calculated from the same data as the preceding table, assuming Jena 16^{III} glass as the material used. The table should be used with caution, and only for approximate results when the temperature differs much from the standard temperature or from the temperature of the surrounding air.]

Observed Per Cent H ₂ SO ₄	Temperature in Degrees Centigrade											
	0	5	10	15	25	30	35	40	45	50	55	60
	Subtract from Observed Per Cent				Add to Observed Per Cent							
0					0.16	0.35	0.59	0.86	1.17	1.5	1.9	2.1
5	0.59	0.49	0.36	0.20	0.24	0.50	0.79	1.11	1.45	1.8	2.2	2.6
10	0.92	0.72	0.51	0.27	0.29	0.60	0.93	1.28	1.65	2.0	2.4	2.8
20	1.39	1.06	0.72	0.36	0.37	0.75	1.14	1.53	1.93	2.3	2.7	3.1
30	1.64	1.23	0.82	0.41	0.41	0.82	1.24	1.65	2.07	2.5	2.9	3.3
40	1.65	1.24	0.82	0.41	0.41	0.82	1.22	1.62	2.03	2.4	2.8	3.2
50	1.56	1.17	0.78	0.39	0.38	0.77	1.15	1.52	1.90	2.3	2.6	3.0
60	1.52	1.14	0.76	0.38	0.37	0.74	1.11	1.48	1.84	2.2	2.6	2.9
70	1.54	1.15	0.76	0.38	0.38	0.75	1.13	1.50	1.86	2.2	2.6	3.0
80	1.72	1.30	0.87	0.44	0.45	0.90	1.36	1.83	2.31	2.8	3.3	3.8
81	1.76	1.34	0.92	0.44	0.47	0.93	1.42	1.93	2.44	3.0	3.5	4.0
82	1.84	1.41	0.96	0.47	0.50	1.00	1.51	2.04	2.58	3.1	3.7	4.3
83	1.94	1.48	1.00	0.50	0.53	1.06	1.59	2.18	2.78	3.4	4.0	4.6
84	2.05	1.57	1.06	0.53	0.55	1.12	1.74	2.36	3.0	3.7	4.4	5.1
85	2.20	1.67	1.13	0.57	0.61	1.23	1.88	2.57	3.3	4.0	4.9	5.8
86	2.36	1.80	1.22	0.62	0.66	1.35	2.08	2.84	3.7	4.6	5.5	
87	2.54	1.95	1.32	0.67	0.73	1.50	2.31	3.2	4.1	5.2		
88	2.75	2.12	1.44	0.74	0.81	1.67	2.59	3.6	4.7	6.0		
89	3.01	2.31	1.58	0.82	0.89	1.86	2.91	4.1	5.6			
90	3.27	2.53	1.73	0.91	0.99	2.10	3.4	4.9				
91	3.57	2.78	1.93	1.01	1.13	2.44	4.1					
92	3.91	3.06	2.13	1.12	1.32	3.00						
93	4.29	3.38	2.37	1.26	1.64							
94	4.75	3.77	2.69	1.46								
95	5.29	4.26	3.12	1.76								
96	5.96	4.88	3.65	2.19								
97	6.78	5.68	4.42	2.90								

Table II.—Degrees Baumé Corresponding to Specific Gravities at 60° F. (15.56 C.)
Greater than 1.

Calculated from the formula,

$$\text{Degrees Baumé} = 145 - \frac{145}{D \frac{60^\circ \text{F.}}{60^\circ \text{F.}}}$$

which defines the Baumé scale, in general use in the United States, for liquids heavier than water.

$D \frac{15.56^\circ \text{C.}}{15.56^\circ \text{C.}}$	0	1	2	3	4	5	6	7	8	9	Dif.
1.00	0.000	0.145	0.289	0.434	0.578	0.721	0.865	1.008	1.151	1.293	143
1.01	1.436	1.578	1.719	1.861	2.002	2.143	2.283	2.424	2.564	2.704	141
1.02	2.843	2.982	3.121	3.260	3.399	3.537	3.675	3.812	3.950	4.087	138
1.03	4.223	4.360	4.496	4.632	4.763	4.903	5.033	5.174	5.303	5.443	136
1.04	5.577	5.711	5.845	5.978	6.111	6.244	6.377	6.509	6.641	6.773	133
1.05	6.905	7.036	7.167	7.298	7.429	7.559	7.689	7.819	7.949	8.078	130
1.06	8.208	8.336	8.465	8.594	8.722	8.850	8.978	9.105	9.232	9.359	128
1.07	9.486	9.613	9.739	9.865	9.991	10.116	10.242	10.367	10.492	10.616	126
1.08	10.741	10.865	10.989	11.113	11.236	11.359	11.483	11.605	11.728	11.850	124
1.09	11.972	12.094	12.216	12.338	12.459	12.580	12.701	12.821	12.942	13.062	121
1.10	13.182	13.302	13.421	13.540	13.659	13.778	13.897	14.015	14.134	14.252	119
1.11	14.370	14.487	14.604	14.721	14.838	14.955	15.072	15.188	15.304	15.420	117
1.12	15.536	15.651	15.767	15.882	15.997	16.111	16.226	16.340	16.454	16.568	115
1.13	16.682	16.795	16.908	17.021	17.134	17.247	17.359	17.471	17.583	17.695	113
1.14	17.807	17.919	18.030	18.141	18.252	18.363	18.473	18.583	18.693	18.803	111
1.15	18.913	19.023	19.132	19.241	19.350	19.459	19.568	19.676	19.784	19.892	109
1.16	20.000	20.108	20.215	20.322	20.430	20.536	20.643	20.750	20.856	20.962	107
1.17	21.068	21.174	21.280	21.385	21.491	21.596	21.701	21.806	21.910	22.014	105
1.18	22.119	22.223	22.327	22.430	22.534	22.637	22.740	22.843	22.946	23.049	103
1.19	23.151	23.254	23.356	23.458	23.560	23.661	23.763	23.864	23.965	24.066	101
1.20	24.167	24.267	24.368	24.468	24.568	24.668	24.768	24.868	24.967	25.066	100
1.21	25.165	25.264	25.363	25.462	25.560	25.658	25.757	25.855	25.952	26.050	98
1.22	26.148	26.245	26.342	26.439	26.536	26.633	26.729	26.826	26.922	27.018	97
1.23	27.114	27.210	27.305	27.401	27.496	27.591	27.686	27.781	27.876	27.970	95
1.24	28.065	28.159	28.253	28.347	28.441	28.534	28.628	28.721	28.814	28.907	94
1.25	29.000	29.093	29.185	29.278	29.370	29.462	29.554	29.646	29.738	29.829	92
1.26	29.921	30.012	30.103	30.194	30.285	30.376	30.466	30.556	30.647	30.737	91
1.27	30.827	30.917	31.006	31.096	31.185	31.275	31.364	31.453	31.542	31.630	89
1.28	31.719	31.807	31.896	31.984	32.072	32.160	32.247	32.335	32.422	32.510	88
1.29	32.597	32.684	32.771	32.858	32.944	33.031	33.117	33.204	33.290	33.376	87
1.30	33.462	33.547	33.633	33.718	33.804	33.889	33.974	34.059	34.144	34.229	85
1.31	34.313	34.397	34.482	34.566	34.650	34.734	34.818	34.901	34.985	35.068	84
1.32	35.152	35.235	35.318	35.401	35.483	35.566	35.649	35.731	35.813	35.895	83
1.33	35.977	36.059	36.141	36.223	36.304	36.386	36.467	36.548	36.629	36.710	81
1.34	36.791	36.872	36.952	37.033	37.113	37.193	37.273	37.353	37.433	37.513	80
1.35	37.593	37.672	37.751	37.831	37.910	37.989	38.068	38.147	38.225	38.304	79
1.36	38.382	38.461	38.539	38.617	38.695	38.773	38.851	38.928	39.006	39.083	78
1.37	39.161	39.238	39.315	39.392	39.469	39.546	39.622	39.699	39.775	39.851	77
1.38	39.928	40.004	40.080	40.156	40.231	40.307	40.382	40.458	40.533	40.608	76
1.39	40.683	40.758	40.833	40.908	40.983	41.057	41.132	41.206	41.280	41.355	75
1.40	41.429	41.503	41.576	41.650	41.724	41.797	41.871	41.944	42.017	42.090	74
1.41	42.163	42.236	42.309	42.381	42.454	42.527	42.599	42.671	42.743	42.815	73

Table 13.—Conversion of Density Basis.

Prepared for use in reducing readings of a hydrometer graduated to indicate density or specific gravity at a specified standard temperature, T , referred to water at a specified temperature, T' , as unity, to the basis of another standard temperature, t , and reference temperature, t' .

The factor Δ (given in units of the sixth decimal place), multiplied by the density or specific-gravity reading, gives the correction to be applied to the reading to reduce it to the required basis.

For example, if a maker using standards indicating $D_{15.56}^{15.56}$ C. wishes to graduate a hydrometer to indicate density at 20° C. referred to water at 4° C. (D_{4}^{20}), the readings of the standard must be corrected by use of the factor $+ .001062$.

Suppose the standard reads 1.5760
 The corresponding correction is $1.6 \times .001062 =$ $+0.0017$
 Corrected reading 1.5777
 The table is calculated for Jena 16^{III} glass.

Given Basis of Density Reading	Required Basis of Density $\frac{t}{t'}$							
	$\frac{20}{4}$	$\frac{17.5}{4}$	$\frac{15.56}{4}$	$\frac{15}{4}$	$\frac{15}{15}$	$\frac{15.56}{15.56}$	$\frac{17.5}{17.5}$	$\frac{20}{20}$
$D_{\frac{T}{T'}}$	(Units of the Sixth Decimal Place)							
$D_{\frac{20}{4}}$	0	+ 58	+ 102	+ 115	+988	+1062	+1344	+1768
$D_{\frac{17.5}{4}}$	- 58	0	+ 45	+ 58	+932	+1004	+1286	+1710
$D_{\frac{15.56}{4}}$	- 102	- 45	0	+ 13	+886	+ 960	+1241	+1666
$D_{\frac{15}{4}}$	- 115	- 58	- 13	0	+874	+ 946	+1228	+1652
$D_{\frac{15}{15}}$	- 988	- 932	- 886	- 874	0	+ 73	+ 354	+ 779
$D_{\frac{15.56}{15.56}}$	-1062	-1004	- 960	- 946	- 73	0	+ 281	+ 706
$D_{\frac{17.5}{17.5}}$	-1344	-1286	-1241	-1228	-354	- 281	0	+ 424
$D_{\frac{20}{20}}$	-1768	-1710	-1666	-1652	-779	- 706	- 424	0

Table 14.—Weight in Grams of 1 Liter of Dry Air at Various Pressures and Temperatures containing 0.04 per cent of CO₂.

Computed from the formula,

$$C = \frac{1.293052}{1 + 0.00367t} \times \frac{h}{760},$$

where h is pressure in mm of mercury at 0° C., and standard gravity, and t is temperature in degrees Centigrade.

Temperature in Deg. C.	Pressure in mm of Hg (0° C., Standard Gravity)											
	720	725	730	735	740	745	750	755	760	765	770	775
15	1.1611	1.1691	1.1772	1.1853	1.1933	1.2014	1.2095	1.2175	1.2256	1.2336	1.2417	1.2498
16	1.1571	1.1651	1.1731	1.1812	1.1892	1.1972	1.2053	1.2133	1.2213	1.2294	1.2374	1.2454
17	1.1531	1.1611	1.1691	1.1771	1.1851	1.1931	1.2011	1.2091	1.2171	1.2251	1.2331	1.2411
18	1.1491	1.1571	1.1650	1.1730	1.1810	1.1890	1.1970	1.2049	1.2129	1.2209	1.2289	1.2369
19	1.1451	1.1531	1.1611	1.1690	1.1770	1.1849	1.1929	1.2008	1.2088	1.2167	1.2247	1.2326
20	1.1412	1.1492	1.1571	1.1650	1.1729	1.1809	1.1888	1.1967	1.2046	1.2126	1.2205	1.2284
21	1.1373	1.1452	1.1531	1.1610	1.1689	1.1768	1.1847	1.1926	1.2005	1.2084	1.2163	1.2242
22	1.1335	1.1414	1.1492	1.1571	1.1650	1.1728	1.1807	1.1886	1.1965	1.2043	1.2122	1.2201
23	1.1296	1.1375	1.1453	1.1532	1.1610	1.1689	1.1767	1.1846	1.1924	1.2002	1.2081	1.2159
24	1.1258	1.1337	1.1415	1.1493	1.1571	1.1649	1.1727	1.1806	1.1884	1.1962	1.2040	1.2118
25	1.1220	1.1298	1.1376	1.1454	1.1532	1.1610	1.1688	1.1766	1.1844	1.1922	1.2000	1.2078
26	1.1183	1.1261	1.1338	1.1416	1.1494	1.1571	1.1649	1.1727	1.1804	1.1882	1.1959	1.2037
27	1.1146	1.1223	1.1300	1.1378	1.1455	1.1533	1.1610	1.1687	1.1765	1.1842	1.1920	1.1997
28	1.1108	1.1186	1.1263	1.1340	1.1417	1.1494	1.1571	1.1648	1.1726	1.1803	1.1880	1.1957
29	1.1072	1.1149	1.1225	1.1302	1.1379	1.1456	1.1533	1.1610	1.1687	1.1764	1.1840	1.1917
30	1.1035	1.1112	1.1188	1.1265	1.1342	1.1418	1.1495	1.1571	1.1648	1.1725	1.1801	1.1878
31	1.0999	1.1075	1.1151	1.1228	1.1304	1.1381	1.1457	1.1533	1.1610	1.1686	1.1762	1.1839

Table 15.—Buoyancy Constants (mg/cm³).

[Difference in milligrams between the mass and the apparent weight of 1 cubic centimeter of water weighed with brass weights (d=8.4) in air at various temperatures and barometer readings (unreduced). A humidity of 50 per cent saturation is assumed. To find the weight of 1 cubic centimeter of air under the conditions assumed in this table, multiply the buoyancy constant by 1.135 (42/37).]

Pressure	Temperature in Degrees Centigrade			
	15	20	25	30
720	1.017	0.998	0.979	0.960
725	1.024	1.004	0.985	0.967
730	1.031	1.011	0.992	0.973
735	1.038	1.018	0.999	0.980
740	1.045	1.025	1.006	0.987
745	1.052	1.032	1.013	0.994
750	1.059	1.039	1.020	1.000
755	1.067	1.046	1.027	1.007
760	1.074	1.053	1.034	1.014
765	1.081	1.060	1.040	1.020
770	1.088	1.067	1.047	1.027
775	1.095	1.074	1.054	1.034
780	1.102	1.081	1.061	1.041

Table 16.—Apparent Weight (in Grams) of Water in Air.

[This table gives the apparent weight, for temperatures between 15° and 30° C., humidity 50 per cent, unreduced barometer reading 76 cm of certain volumes of water weighed with brass weights. This table is based on the data given in Tables 1 and 15, and may be conveniently employed to determine definite volumes of water for calibrating instruments. The table assumes the air to be at the same temperature as the water.]

Standard Degrees	2000 cc	1000 cc	500 cc	400 cc	300 cc	250 cc	150 cc
15	1996.11	998.05	499.03	399.22	299.42	249.51	149.71
16	1995.80	997.90	498.95	399.16	299.37	249.48	149.68
17	1995.48	997.74	498.87	399.10	299.32	249.43	149.66
18	1995.13	997.56	498.78	399.03	299.27	249.39	149.63
19	1994.76	997.38	498.69	398.95	299.21	249.34	149.61
20	1994.36	997.18	498.59	398.87	299.15	249.30	149.58
21	1993.95	996.97	498.49	398.79	299.09	249.24	149.55
22	1993.51	996.76	498.38	398.70	299.03	249.19	149.51
23	1993.06	996.53	498.26	398.61	298.96	249.13	149.48
24	1992.58	996.29	498.15	398.52	298.89	249.07	149.44
25	1992.09	996.04	498.02	398.42	298.81	249.01	149.41
26	1991.57	995.79	497.89	398.31	298.74	248.95	149.37
27	1991.04	995.52	497.76	398.21	298.66	248.88	149.33
28	1990.49	995.24	497.62	398.10	298.57	248.81	149.29
29	1989.92	994.96	497.48	397.98	298.49	248.74	149.24
30	1989.33	994.66	497.33	397.87	298.40	248.67	149.20

Table 17.—Temperature Correction for Glass Volumetric Apparatus.

[This table gives the correction to be added to actual capacity (determined at certain temperatures) to give the capacity at the standard temperature, 20° C. Conversely, by subtracting the corrections from the indicated capacity of an instrument standard at 20° C. the corresponding capacity at other temperatures is obtained. The table assumes for the cubical coefficient of expansion of glass 0.000025 per degree Centigrade. The coefficients of expansion of glasses used for volumetric instruments vary from .000023 to .000028.]

Temperature	2000 cc	1000 cc	500 cc	400 cc	300 cc	250 cc
15	+0.25	+0.12	+0.06	+0.05	+0.04	+0.031
16	+ .20	+ .10	+ .05	+ .04	+ .03	+ .025
17	+ .15	+ .08	+ .04	+ .03	+ .02	+ .019
18	+ .10	+ .05	+ .02	+ .02	+ .02	+ .012
19	+ .05	+ .02	+ .01	+ .01	+ .01	+ .006
21	-0.05	-0.02	-0.01	-0.01	-0.01	-0.006
22	- .10	- .05	- .02	- .02	- .02	- .012
23	- .15	- .08	- .04	- .03	- .02	- .019
24	- .20	- .10	- .05	- .04	- .03	- .025
25	- .25	- .12	- .06	- .05	- .04	- .031
26	-0.30	-0.15	-0.08	-0.06	-0.04	-0.038
27	- .35	- .18	- .09	- .07	- .05	- .044
28	- .40	- .20	- .10	- .08	- .06	- .050
29	- .45	- .22	- .11	- .09	- .07	- .056
30	- .50	- .25	- .12	- .10	- .08	- .062

Tables of Corrections for Determining the True Capacities of Glass Vessels from the Weight of Water in Air.

Tables 18 to 30 are intended for the calculation of capacities of glass vessels of common sizes from the weight (in air) of the water contained or delivered. They give for each nominal capacity and observed temperature the amounts to be added to the apparent weight (in air against brass weights) of the water contained in or delivered by a glass vessel to give the capacity in cubic centimeters at 20° C. They are calculated on the following data assumed as approximating ordinary conditions:

Observed barometric pressure.....	76 cm.
Relative humidity	50 per cent.
Coefficient of expansion of glass	0.000025 per deg. C.

EXAMPLE OF USE OF TABLE.

Determination of capacity of glass measuring flask marked "To contain 250 cc at 20° C."

Apparent weight of water at the observed temperature 22°3 C.....	249.198
From Table 18, correction.....	0.813

Actual capacity at 20°.....	250.011
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Table 18.—Indicated Capacity 250 cc.

[Amounts to be added to apparent weight of water in grams to obtain actual capacity in cubic centimeters at 20° C.]

Temp. in Deg. C.	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	.518	.521	.524	.528	.530	.534	.537	.540	.543	.546
16	.550	.554	.556	.560	.563	.567	.570	.574	.578	.581
17	.584	.588	.592	.596	.599	.603	.606	.610	.614	.618
18	.622	.626	.630	.633	.638	.642	.646	.649	.654	.658
19	.662	.666	.670	.674	.679	.683	.687	.692	.696	.700
20	.705	.709	.714	.718	.722	.727	.732	.736	.741	.746
21	.750	.754	.760	.764	.769	.774	.778	.784	.788	.793
22	.798	.804	.808	.813	.818	.824	.828	.834	.839	.844
23	.849	.854	.860	.865	.870	.875	.881	.886	.892	.897
24	.902	.908	.913	.919	.924	.930	.936	.941	.947	.952
25	.958	.964	.969	.975	.981	.986	.993	.998	1.004	1.010
26	1.016	1.022	1.028	1.034	1.040	1.046	1.052	1.058	1.064	1.070
27	1.076	1.082	1.089	1.095	1.101	1.108	1.114	1.120	1.126	1.132
28	1.139	1.146	1.152	1.158	1.165	1.172	1.178	1.184	1.191	1.198
29	1.204	1.211	1.218							

Tables of Corrections for Determining the True Capacities of Glass Vessels from the Weight of Water in Air—Continued.

[Amounts to be added to apparent weight of water in grams to obtain actual capacity in cubic centimeters at 20° C.]

Table 19.—Indicated Capacity 200 cc.

Temp. in Deg. C.	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	.414	.417	.419	.422	.424	.427	.430	.432	.435	.437
16	.440	.443	.445	.448	.451	.454	.456	.459	.462	.465
17	.468	.470	.473	.477	.479	.482	.485	.488	.491	.494
18	.497	.501	.504	.507	.510	.513	.516	.519	.523	.526
19	.529	.533	.536	.540	.543	.546	.550	.553	.557	.560
20	.564	.567	.571	.574	.578	.582	.585	.589	.593	.596
21	.600	.604	.608	.612	.615	.619	.623	.627	.631	.635
22	.639	.643	.647	.650	.655	.659	.663	.667	.671	.675
23	.679	.683	.688	.692	.696	.700	.705	.709	.713	.717
24	.722	.726	.731	.735	.739	.744	.748	.753	.757	.762
25	.766	.771	.775	.780	.785	.789	.794	.799	.803	.808
26	.813	.818	.822	.827	.832	.837	.842	.846	.851	.856
27	.861	.866	.871	.876	.881	.886	.891	.896	.901	.906
28	.911	.917	.922	.927	.932	.937	.942	.947	.953	.958
29	.963	.969	.974							

Table 20.—Indicated Capacity 150 cc.

15	.311	.313	.314	.316	.318	.320	.322	.324	.326	.328
16	.330	.332	.334	.336	.338	.340	.342	.344	.346	.349
17	.351	.353	.355	.357	.359	.362	.364	.366	.368	.371
18	.373	.375	.378	.380	.383	.385	.387	.390	.392	.395
19	.397	.400	.402	.405	.408	.410	.412	.415	.418	.420
20	.423	.425	.428	.431	.433	.436	.439	.442	.445	.448
21	.450	.453	.456	.459	.461	.464	.467	.470	.473	.476
22	.479	.483	.485	.488	.491	.494	.497	.500	.503	.506
23	.509	.512	.516	.519	.522	.525	.529	.532	.535	.538
24	.541	.545	.548	.551	.554	.558	.562	.565	.568	.571
25	.575	.578	.581	.585	.588	.592	.596	.599	.602	.606
26	.610	.613	.617	.620	.624	.628	.631	.635	.638	.642
27	.645	.649	.653	.657	.661	.664	.668	.672	.676	.680
28	.684	.688	.691	.695	.699	.703	.707	.711	.715	.719
29	.722	.726	.730							

Table 21.—Indicated Capacity 100 cc.

15	.207	.208	.210	.211	.212	.213	.215	.216	.217	.219
16	.220	.221	.223	.224	.225	.227	.228	.230	.231	.232
17	.234	.235	.237	.238	.240	.241	.243	.244	.246	.247
18	.249	.250	.252	.253	.255	.257	.258	.260	.261	.263
19	.265	.266	.268	.270	.272	.273	.275	.277	.278	.280
20	.282	.284	.285	.287	.289	.291	.293	.294	.296	.298
21	.300	.302	.304	.306	.308	.310	.311	.314	.315	.317
22	.319	.321	.323	.325	.327	.329	.331	.333	.336	.338
23	.340	.342	.344	.346	.348	.350	.352	.354	.357	.359
24	.361	.363	.365	.368	.370	.372	.374	.376	.379	.381
25	.383	.386	.388	.390	.392	.395	.397	.399	.402	.404
26	.406	.409	.411	.414	.416	.418	.421	.423	.426	.428
27	.431	.433	.436	.438	.440	.443	.446	.448	.451	.453
28	.456	.458	.461	.463	.466	.469	.471	.474	.476	.479
29	.482	.484	.487							

Tables of Corrections for Determining the True Capacities of Glass Vessels from the Weight of Water in Air—Continued.

[Amounts to be added to apparent weight of water in grams to obtain actual capacity in cubic centimeters at 20° C.] *

Table 22.—Indicated Capacity 90 cc.

Temp. in Deg. C.	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	.186	.188	.189	.190	.191	.192	.193	.194	.196	.197
16	.198	.199	.200	.202	.203	.204	.205	.207	.208	.209
17	.210	.212	.213	.214	.216	.217	.218	.220	.221	.222
18	.224	.225	.227	.228	.230	.231	.232	.234	.235	.237
19	.238	.240	.241	.243	.244	.246	.247	.249	.251	.252
20	.254	.255	.257	.258	.260	.262	.263	.265	.267	.268
21	.270	.272	.273	.275	.277	.278	.280	.282	.284	.286
22	.287	.289	.291	.293	.295	.296	.298	.300	.302	.304
23	.306	.308	.309	.311	.313	.315	.317	.319	.321	.323
24	.325	.327	.329	.331	.333	.335	.337	.339	.341	.343
25	.345	.347	.349	.351	.353	.355	.357	.359	.362	.364
26	.366	.368	.370	.372	.374	.377	.379	.381	.383	.385
27	.388	.390	.392	.394	.396	.399	.401	.403	.406	.408
28	.410	.412	.415	.417	.419	.422	.424	.426	.429	.431
29	.434	.436	.438							

Table 23.—Indicated Capacity 80 cc.

15	.166	.167	.168	.169	.170	.171	.172	.173	.174	.175
16	.176	.177	.178	.179	.180	.181	.183	.184	.185	.186
17	.187	.188	.189	.191	.192	.193	.194	.195	.196	.198
18	.199	.200	.201	.203	.204	.205	.206	.208	.209	.210
19	.212	.213	.214	.216	.217	.218	.220	.221	.223	.224
20	.226	.227	.228	.230	.231	.233	.234	.236	.237	.239
21	.240	.241	.243	.245	.246	.248	.249	.251	.252	.254
22	.255	.257	.259	.260	.262	.264	.265	.267	.268	.270
23	.272	.273	.275	.277	.278	.280	.282	.284	.285	.287
24	.289	.290	.292	.294	.296	.298	.299	.301	.303	.305
25	.306	.303	.310	.312	.314	.316	.318	.320	.321	.323
26	.325	.327	.329	.331	.333	.335	.337	.339	.341	.342
27	.344	.346	.348	.350	.352	.354	.356	.358	.360	.362
28	.365	.367	.369	.371	.373	.375	.377	.379	.381	.383
29	.385	.387	.390							

Table 24.—Indicated Capacity 70 cc.

15	.145	.146	.147	.148	.148	.149	.150	.151	.152	.153
16	.154	.155	.156	.157	.158	.159	.160	.161	.162	.163
17	.164	.165	.166	.167	.168	.169	.170	.171	.172	.173
18	.174	.175	.176	.177	.178	.180	.181	.182	.183	.184
19	.185	.186	.188	.189	.190	.191	.192	.194	.195	.196
20	.197	.199	.200	.201	.202	.204	.205	.206	.207	.209
21	.210	.211	.213	.214	.216	.217	.218	.220	.221	.222
22	.224	.225	.226	.228	.229	.230	.232	.233	.235	.236
23	.238	.239	.241	.242	.244	.245	.247	.248	.250	.251
24	.253	.254	.256	.257	.259	.260	.262	.263	.265	.267
25	.268	.270	.271	.273	.274	.276	.278	.280	.281	.283
26	.284	.286	.288	.289	.291	.293	.294	.296	.298	.299
27	.301	.303	.305	.307	.308	.310	.312	.314	.315	.317
28	.319	.321	.323	.324	.326	.328	.330	.332	.333	.335
29	.337	.339	.341							

Tables of Corrections for Determining the True Capacities of Glass Vessels from the Weight of Water in Air—Continued.

[Amounts to be added to apparent weight of water in grams to obtain actual capacity in cubic centimeters at 20° C.]

Table 25.—Indicated Capacity 60 cc.

Temp. in Deg. C.	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	.124	.125	.126	.127	.127	.128	.129	.130	.130	.131
16	.132	.133	.134	.134	.135	.136	.137	.138	.139	.140
17	.140	.141	.142	.143	.144	.145	.145	.147	.147	.148
18	.150	.150	.151	.152	.153	.154	.155	.156	.157	.158
19	.159	.160	.161	.162	.163	.164	.165	.166	.167	.168
20	.169	.170	.171	.172	.173	.175	.176	.177	.178	.179
21	.180	.181	.182	.183	.185	.186	.187	.188	.189	.190
22	.192	.193	.194	.195	.196	.198	.199	.200	.201	.202
23	.204	.205	.206	.208	.209	.210	.211	.213	.214	.215
24	.216	.218	.219	.220	.222	.223	.225	.226	.227	.228
25	.230	.231	.232	.234	.235	.237	.238	.240	.241	.242
26	.244	.245	.247	.248	.250	.251	.253	.254	.255	.257
27	.258	.260	.261	.263	.264	.266	.267	.269	.270	.272
28	.273	.275	.276	.278	.280	.281	.283	.284	.286	.288
29	.289	.291	.292							

Table 26.—Indicated Capacity 50 cc.

15	.104	.104	.105	.106	.106	.107	.107	.108	.109	.109
16	.110	.111	.111	.112	.113	.113	.114	.115	.116	.116
17	.117	.118	.118	.119	.120	.121	.121	.122	.123	.124
18	.124	.125	.126	.127	.128	.128	.129	.130	.131	.132
19	.132	.133	.134	.135	.136	.137	.137	.138	.139	.140
20	.141	.142	.143	.144	.144	.145	.146	.147	.148	.149
21	.150	.151	.152	.153	.154	.155	.156	.157	.158	.159
22	.160	.161	.162	.163	.164	.165	.166	.167	.168	.169
23	.170	.171	.172	.173	.174	.175	.176	.177	.178	.179
24	.180	.182	.183	.184	.185	.186	.187	.188	.189	.190
25	.192	.193	.194	.195	.196	.197	.199	.200	.201	.202
26	.203	.204	.206	.207	.208	.209	.210	.212	.213	.214
27	.215	.216	.218	.219	.220	.222	.223	.224	.225	.226
28	.228	.229	.230	.232	.233	.234	.236	.237	.238	.240
29	.241	.242	.244							

Table 27.—Indicated Capacity 45 cc.

15	.093	.094	.094	.095	.095	.096	.097	.097	.098	.098
16	.099	.100	.100	.101	.101	.102	.103	.103	.104	.105
17	.105	.106	.107	.107	.108	.108	.109	.110	.111	.111
18	.112	.113	.113	.114	.115	.115	.116	.117	.118	.118
19	.119	.120	.121	.121	.122	.123	.124	.124	.125	.126
20	.127	.128	.128	.129	.130	.131	.132	.132	.133	.134
21	.135	.136	.137	.138	.138	.139	.140	.141	.142	.143
22	.144	.145	.145	.146	.147	.148	.149	.150	.151	.152
23	.153	.154	.155	.156	.157	.158	.159	.160	.160	.161
24	.162	.163	.164	.165	.166	.167	.168	.169	.170	.171
25	.172	.173	.174	.176	.177	.178	.179	.180	.181	.182
26	.183	.184	.185	.186	.187	.188	.189	.190	.192	.193
27	.194	.195	.196	.197	.198	.199	.201	.202	.203	.204
28	.205	.206	.207	.209	.210	.211	.212	.213	.214	.216
29	.217	.218	.219							

Tables of Corrections for Determining the True Capacities of Glass Vessels from the Weight of Water in Air—Continued.

[Amounts to be added to apparent weight of water in grams to obtain actual capacity in cubic centimeters at 20° C.]

Table 28.—Indicated Capacity 40 cc.

Temp. in Deg. C.	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	.083	.083	.084	.084	.085	.085	.086	.086	.087	.087
16	.088	.089	.089	.090	.090	.091	.091	.092	.092	.093
17	.094	.094	.095	.095	.096	.096	.097	.098	.098	.099
18	.099	.100	.101	.101	.102	.102	.103	.104	.105	.105
19	.106	.107	.107	.108	.109	.109	.110	.111	.111	.112
20	.113	.113	.114	.115	.116	.116	.117	.118	.119	.119
21	.120	.121	.122	.122	.123	.124	.125	.125	.126	.127
22	.128	.129	.129	.130	.131	.132	.133	.133	.134	.135
23	.136	.137	.138	.138	.139	.140	.141	.142	.143	.143
24	.144	.145	.146	.147	.148	.149	.150	.151	.151	.152
25	.153	.154	.155	.156	.157	.158	.159	.160	.161	.162
26	.163	.164	.164	.165	.166	.167	.168	.169	.170	.171
27	.172	.173	.174	.175	.176	.177	.178	.179	.180	.181
28	.182	.183	.184	.185	.186	.187	.188	.189	.191	.192
29	.193	.194	.195							

Table 29.—Indicated Capacity 35 cc.

15	.073	.073	.073	.074	.074	.075	.075	.076	.076	.076
16	.077	.078	.078	.078	.079	.079	.080	.080	.081	.081
17	.082	.082	.083	.083	.084	.084	.085	.085	.086	.086
18	.087	.088	.088	.089	.089	.090	.090	.091	.091	.092
19	.092	.093	.094	.094	.095	.096	.096	.097	.097	.098
20	.099	.099	.100	.100	.101	.102	.102	.103	.104	.104
21	.105	.106	.106	.107	.108	.108	.109	.110	.110	.111
22	.112	.113	.113	.114	.115	.115	.116	.117	.117	.118
23	.119	.120	.120	.121	.122	.122	.123	.124	.125	.126
24	.126	.127	.128	.129	.129	.130	.131	.132	.133	.133
25	.134	.135	.136	.137	.137	.138	.139	.140	.141	.141
26	.142	.143	.144	.145	.146	.146	.147	.148	.149	.150
27	.151	.152	.152	.153	.154	.155	.156	.157	.158	.159
28	.159	.160	.161	.162	.163	.164	.165	.166	.167	.168
29	.169	.170	.170							

Table 30.—Indicated Capacity 30 cc.

15	.062	.063	.063	.063	.064	.064	.064	.065	.065	.066
16	.066	.066	.067	.067	.068	.068	.068	.069	.069	.070
17	.070	.071	.071	.071	.072	.072	.073	.073	.074	.074
18	.075	.075	.076	.076	.077	.077	.077	.078	.078	.079
19	.079	.080	.080	.081	.081	.082	.082	.083	.084	.084
20	.085	.085	.086	.086	.087	.087	.088	.088	.089	.089
21	.090	.091	.091	.092	.092	.093	.093	.094	.094	.095
22	.096	.096	.097	.098	.098	.099	.099	.100	.101	.101
23	.102	.103	.103	.104	.104	.105	.106	.106	.107	.108
24	.108	.109	.110	.110	.111	.112	.112	.113	.114	.114
25	.115	.116	.116	.117	.118	.118	.119	.120	.121	.121
26	.122	.123	.123	.124	.125	.126	.126	.127	.128	.128
27	.129	.130	.131	.131	.132	.133	.134	.134	.135	.136
28	.137	.137	.138	.139	.140	.141	.141	.142	.143	.144
29	.145	.145	.146							

Table 31.—Density of Water at Temperatures from 0° to 102° C.⁷

Temp., Deg. C.	Density	Temp., Deg. C.	Density	Temp., Deg. C.	Density
0	.99987	35	.99406	70	.97781
1	.99993	36	.99371	71	.97723
2	.99997	37	.99336	72	.97666
3	.99999	38	.99299	73	.97607
4	1.00000	39	.99262	74	.97548
5	.99999	40	.99224	75	.97489
6	.99997	41	.99186	76	.97428
7	.99993	42	.99147	77	.97368
8	.99988	43	.99107	78	.97307
9	.99981	44	.99066	79	.97245
10	.99973	45	.99024	80	.97183
11	.99963	46	.98982	81	.97120
12	.99952	47	.98940	82	.97057
13	.99940	48	.98896	83	.96994
14	.99927	49	.98852	84	.96930
15	.99913	50	.98807	85	.96865
16	.99897	51	.98762	86	.96800
17	.99880	52	.98715	87	.96734
18	.99862	53	.98669	88	.96668
19	.99843	54	.98621	89	.96601
20	.99823	55	.98573	90	.96534
21	.99802	56	.98524	91	.96467
22	.99780	57	.98478	92	.96399
23	.99756	58	.98425	93	.96330
24	.99732	59	.98375	94	.96261
25	.99707	60	.98324	95	.96192
26	.99681	61	.98272	96	.96122
27	.99654	62	.98220	97	.96051
28	.99626	63	.98167	98	.95981
29	.99597	64	.98113	99	.95909
30	.99567	65	.98059	100	.95838
31	.99537	66	.98005	101	.95765
32	.99505	67	.97950	102	.95693
33	.99473	68	.97894		
34	.99440	69	.97838		
35	.99406	70	.97781		

⁷ According to M. Thiesen, Physikalisch-Technische Reichsanstalt (Wiss. Abh., Vol. IV, No. 1, 1904).

