DEPARTMENT OF COMMERCE

CIRCULAR

OF THE

BUREAU OF STANDARDS

S. W. STRATTON, DIRECTOR

No. 19

STANDARD DENSITY AND VOLUMETRIC TABLES

[3d Edition]
Issued April 1, 1913

WASHINGTON
GOVERNMENT PRINTING OFFICE
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CONTENTS

		Page
Introduction		4
Table 1.	Density of pure water free from air from 0° to 41° C.	5
Table 2.	Density of mixtures (by weight) of ethyl alcohol and water at 10°, 15°, 20°, 25°, 30°, 35°, and 40° C.	6
Table 3.	Density at 20° C of mixtures (by weight) of ethyl alcohol and water, given to tenths per cent	8
Table 4.	Specific gravity at $\frac{60°}{60°}F\left(\frac{15°56}{15°56}C\right)$ of mixtures (by volume) of ethyl alcohol and water given to tenths per cent	10
Table 5.	Temperature corrections to readings of alcoholometers (standard at 60° F)	12
Table 6.	Percentages by volume at 60° F, corresponding to various percentages by weight in mixtures of ethyl alcohol and water	18
Table 7.	Percentages by weight corresponding to various percentages by volume at 60° F in mixtures of ethyl alcohol and water	20
Table 8.	Temperature corrections to readings of alcoholometers (standard at 20° C)	21
Table 9.	Density at 15° C of mixtures (by weight) of methyl alcohol and water	22
Table 10.	Specific gravity at $\frac{15°}{15°}C$ of mixtures (by volume) of methyl alcohol and water	23
Table 11.	Percentages by volume at 15° C, corresponding to various percentages by weight in mixtures of methyl alcohol and water	24
Table 12.	Temperature corrections to readings of saccharometers (standard at 20° C)	25
Table 13.	Density of solutions of cane sugar at 20° C	26
Table 14.	Density of solutions of sulphuric acid (H_2SO_4) at 20° C	28
Table 15.	Temperature corrections to per cent of sulphuric acid determined by hydrometer (standard at 20° C)	29
Table 16.	Degrees Baumé corresponding to specific gravities at $\frac{60°}{60°}F\left(\frac{15°56}{15°56}C\right)$ greater than 1	30
Table 17.	Specific gravities at $\frac{60°}{60°}F\left(\frac{15°56}{15°56}C\right)$ corresponding to degrees Baumé for liquids heavier than water	32
Table 18.	Degrees Baumé corresponding to specific gravities at $\frac{60°}{60°}F\left(\frac{15°56}{15°56}C\right)$ less than 1	33
Table 19.	Specific gravities at $\frac{60°}{60°}F\left(\frac{15°56}{15°56}C\right)$ corresponding to degrees Baumé for liquids lighter than water	34
Table 20.	Conversion of density basis	36
Table 21.	Density of dry air at various pressures and temperatures	37
Table 22.	Difference between the mass and apparent weight of water when weighed in air	37
Table 23.	Apparent weight (in grams) of water in air	38
Table 24.	Temperature correction for glass volumetric apparatus	38
Tables 25 to 37.	Tables for the calculation of the capacity of glass vessels from weight of water in air	39
Table 38.	Density of water at temperatures from 0° to 102° C	44

INTRODUCTION

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 prepare 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.

In all tables found in this circular the term DENSITY is used to represent the MASS per UNIT VOLUME and is expressed in GRAMS per MILLILITER.

The term SPECIFIC GRAVITY is used to express the RELATIVE MASSES of EQUAL VOLUMES of the liquid in question and of water, EACH LIQUID being at a DEFINITELY STATED TEMPERATURE. For example, specific gravity at $\frac{60°}{60°}$F means the specific gravity of the liquid at 60° F referred to water at 60° F as unity.

The density values in Tables 1, 2, 3, 9, 13, 14, and 38 are numerically the same as specific gravities at the various temperatures referred to water at 4° C as unity.

For the sake of uniformity the same abbreviation, D, with the proper temperature basis, is used for both density and specific gravity.

S. W. STRATTON,
Director.

Approved:
E. F. SWEET,
Acting Secretary.

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, in grams per milliliter [1]]

Degrees Centigrade	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	*9799	*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[2] (in grams per milliliter) of Mixtures of Ethyl Alcohol and Water[2a]

Per cent alcohol by weight	Temperature						
	10° C	15° C	20° C	25° C	30° C	35° C	40° C
0	0.99973	0.99913	0.99823	0.99708	0.99568	0.99406	0.99225
1	785	725	636	520	379	217	034
2	602	542	453	336	194	031	.98846
3	426	365	275	157	014	.98849	663
4	258	195	103	.98984	.98839	672	485
5	098	032	.98938	817	670	501	311
6	.98946	.98877	780	656	507	335	142
7	801	729	627	500	347	172	.97975
8	660	584	478	346	189	009	808
9	524	442	331	193	031	.97846	641
10	393	304	187	043	.97875	685	475
11	267	171	047	.97897	723	527	312
12	145	041	.97910	753	573	371	150
13	026	.97914	775	611	424	216	.96989
14	.97911	790	643	472	278	063	829
15	800	669	514	334	133	.96911	670
16	692	552	387	199	.96990	760	512
17	583	433	259	062	844	607	352
18	473	313	129	.96923	697	452	189
19	363	191	.96997	782	547	294	023
20	252	068	864	639	395	134	.95856
21	139	.96944	729	495	242	.95973	687
22	024	818	592	348	087	809	516
23	.96907	689	453	199	.95929	643	343
24	787	558	312	048	769	476	168
25	665	424	168	.95895	607	306	.94991
26	539	287	020	738	442	133	810
27	406	144	.95867	576	272	.94955	625
28	268	.95996	710	410	098	774	438
29	125	844	548	241	.94922	590	248
30	.95977	686	382	067	741	403	055
31	823	524	212	.94890	557	214	.93860
32	665	357	038	709	370	021	662
33	502	186	.94860	525	180	.93825	461
34	334	011	679	337	.93986	626	257
35	162	.94832	494	146	790	425	051
36	.94986	650	306	.93952	591	221	.92843
37	805	464	114	756	390	016	634
38	620	273	.93919	556	186	.92808	422
39	431	079	720	353	.92979	597	208
40	238	.93882	518	148	770	385	.91992
41	042	682	314	.92940	558	170	774
42	.93842	478	107	729	344	.91952	554
43	639	271	.92897	516	128	733	332
44	433	062	685	301	.91910	513	108
45	226	.92852	472	085	692	291	.90884
46	017	640	257	.91868	472	069	660
47	.92806	426	041	649	250	.90845	434
48	593	211	.91823	429	028	621	207
49	379	.91995	604	208	.90805	396	.89979
50	162	776	384	.90985	580	168	750

[2] The density values given in this table are numerically the same as specific gravities at the various temperatures in terms of water at 4° C as unity.

[2a] Tables 2, 3, 4, 5, 6, 7, and 8 of this circular are based on the work done at this Bureau and published in the Bulletin of the Bureau of Standards, vol. 9, No. 3. A new interpolation of the original data has changed slightly some of the density values from those published in the previous edition of this circular.

TABLE 2.—Density (in grams per milliliter) of Mixtures of Ethyl Alcohol and Water—Continued

Per cent alcohol by weight	Temperature						
	10° C	15° C	20° C	25° C	30° C	35° C	40° C
50	0.92162	0.91776	0.91384	0.90985	0.90580	0.90168	0.89750
51	.91943	555	160	760	353	.89940	519
52	723	333	.90936	534	125	710	288
53	502	110	711	307	.89896	479	056
54	279	.90885	485	079	667	248	.88823
55	055	659	258	.89850	437	016	589
56	.90831	433	031	621	206	.88784	356
57	607	207	.89803	392	.88975	552	122
58	381	.89980	574	162	744	319	.87888
59	154	752	344	.88931	512	085	653
60	.89927	523	113	699	278	.87851	417
61	698	293	.88882	466	044	615	180
62	468	062	650	233	.87809	379	.86943
63	237	.88830	417	.87998	574	142	705
64	006	597	183	763	337	.86905	466
65	.88774	364	.87948	527	100	667	227
66	541	130	713	291	.86863	429	.85987
67	308	.87895	477	054	625	190	747
68	074	660	241	.86817	387	.85950	507
69	.87839	424	004	579	148	710	266
70	602	187	.86766	340	.85908	470	025
71	365	.86949	527	100	667	228	.84783
72	127	710	287	.85859	426	.84986	540
73	.86888	470	047	618	184	743	297
74	648	229	.85806	376	.84941	500	053
75	408	.85988	564	134	698	257	.83809
76	168	747	322	.84891	455	013	564
77	.85927	505	079	647	211	.83768	319
78	685	262	.84835	403	.83966	523	074
79	442	018	590	158	720	277	.82827
80	197	.84772	344	.83911	473	029	578
81	.84950	525	096	664	224	.82780	329
82	702	277	.83848	415	.82974	530	079
83	453	028	599	164	724	279	.81828
84	203	.83777	348	.82913	473	027	576
85	.83951	525	095	660	220	.81774	322
86	697	271	.82840	405	.81965	519	067
87	441	014	583	148	708	262	.80811
88	181	.82754	323	.81888	448	003	552
89	.82919	492	062	626	186	.80742	291
90	654	227	.81797	362	.80922	478	028
91	386	.81959	529	094	655	211	.79761
92	114	688	257	.80823	384	.79941	491
93	.81839	413	.80983	549	111	669	220
94	561	134	705	272	.79835	393	.78947
95	278	.80852	424	.79991	555	114	670
96	.80991	566	138	706	271	.78831	388
97	698	274	.79846	415	.78981	542	100
98	399	.79975	547	117	684	247	.77806
99	094	670	243	.78814	382	.77946	507
100	.79784	360	.78934	506	075	641	203

TABLE 3.—Density [2b] (in grams per milliliter) of Mixtures of Ethyl Alcohol and Water at 20° C

Per Cent Alcohol by Weight	Tenths of Per Cent									
	0	1	2	3	4	5	6	7	8	9
0	0.99823	804	785	766	748	729	710	692	673	655
1	636	618	599	581	562	544	525	507	489	471
2	453	435	417	399	381	363	345	327	310	292
3	275	257	240	222	205	188	171	154	137	120
4	103	087	070	053	037	020	003	*987	*971	*954
5	.98938	922	906	890	874	859	843	827	811	796
6	780	765	749	734	718	703	688	673	658	642
7	627	612	597	582	567	553	538	523	508	493
8	478	463	449	434	419	404	389	374	360	345
9	331	316	301	287	273	258	244	229	215	201
10	187	172	158	144	130	117	103	089	075	061
11	047	033	019	006	*992	*978	*964	*951	*937	*923
12	.97910	896	883	869	855	842	828	815	801	788
13	775	761	748	735	722	709	696	683	670	657
14	643	630	617	604	591	578	565	552	539	526
15	514	501	488	475	462	450	438	425	412	400
16	387	374	361	349	336	323	310	297	284	272
17	259	246	233	220	207	194	181	168	155	142
18	129	116	103	089	076	063	050	037	024	010
19	.96997	984	971	957	944	931	917	904	891	877
20	864	850	837	823	810	796	783	769	756	742
21	729	716	702	688	675	661	647	634	620	606
22	592	578	564	551	537	523	509	495	481	467
23	453	439	425	411	396	382	368	354	340	326
24	312	297	283	269	254	240	225	211	196	182
25	168	153	139	124	109	094	080	065	050	035
26	020	005	*990	*975	*959	*944	*929	*914	*898	*883
27	.95867	851	836	820	805	789	773	757	742	726
28	710	694	678	662	646	630	613	597	581	565
29	548	532	516	499	483	466	450	433	416	400
30	382	365	349	332	315	298	281	264	247	230
31	212	195	178	161	143	126	108	091	074	056
32	038	020	003	*985	*967	*950	*932	*914	*896	*878
33	.94860	842	824	806	788	770	752	734	715	697
34	679	660	642	624	605	587	568	550	531	512
35	494	475	456	438	419	400	382	363	344	325
36	306	287	268	249	230	211	192	172	153	134
37	114	095	075	056	036	017	*997	*978	*958	*939
38	.93919	899	879	859	840	820	800	780	760	740
39	720	700	680	660	640	620	599	579	559	539
40	518	498	478	458	437	417	396	376	356	335
41	314	294	273	253	232	212	191	170	149	129
42	107	086	065	044	023	002	*981	*960	*939	*918
43	.92897	876	855	834	812	791	770	749	728	707
44	685	664	642	621	600	579	557	536	515	493
45	472	450	429	408	386	365	343	322	300	279
46	257	236	214	193	171	150	128	106	085	063
47	041	019	*997	*976	*954	*932	*910	*889	*867	*845
48	.91823	801	780	758	736	714	692	670	648	626
49	604	582	560	538	516	494	472	450	428	406
50	384	361	339	317	295	272	250	228	206	183

[2b] The density values given in this table are numerically the same as specific gravity at 20° C in terms of water at 4° C as unity.

TABLE 3.—Density (in grams per milliliter) of Mixtures of Ethyl Alcohol and Water, at 20° C—Continued

Per Cent Alcohol by Weight	Tenths of Per Cent									
	0	1	2	3	4	5	6	7	8	9
50	0.91384	361	339	317	295	272	250	228	206	183
51	160	138	116	093	071	049	026	004	*981	*959
52	.90936	914	891	869	846	824	801	779	756	734
53	711	689	656	644	621	598	576	553	531	508
54	485	463	440	417	395	372	349	327	304	281
55	258	236	213	190	167	145	122	099	076	054
56	031	008	*985	*962	*939	*917	*894	*871	*848	*825
57	.89803	780	757	734	711	688	665	643	620	597
58	574	551	528	505	482	459	436	413	390	367
59	344	321	298	275	252	229	206	183	160	137
60	113	090	067	044	021	*998	*975	*951	*928	*905
61	.88882	859	836	812	789	766	743	720	696	673
62	650	626	603	580	557	533	510	487	463	440
63	417	393	370	347	323	300	277	253	230	206
64	183	160	136	113	089	066	042	019	*995	*972
65	.87948	925	901	878	854	831	807	784	760	737
66	713	689	666	642	619	595	572	548	524	501
67	477	454	430	406	383	359	336	312	288	265
68	241	218	194	170	147	123	099	075	052	028
69	004	*981	*957	*933	*909	*885	*862	*838	*814	*790
70	.86766	742	718	694	671	647	623	599	575	551
71	527	503	479	455	431	407	383	359	335	311
72	287	263	239	215	191	167	143	119	095	071
73	047	022	*998	*974	*950	*926	*902	*878	*854	*830
74	.85806	781	757	733	709	685	661	636	612	588
75	564	540	515	491	467	443	419	394	370	346
76	322	297	273	249	225	200	176	152	128	103
77	079	055	031	006	*982	*958	*933	*909	*884	*860
78	.84835	811	787	762	738	713	689	664	640	615
79	590	566	541	517	492	467	443	418	393	369
80	344	319	294	270	245	220	196	171	146	121
81	096	072	047	022	*997	*972	*947	*923	*898	*873
82	.83848	823	798	773	748	723	698	674	649	624
83	599	574	549	523	498	473	448	423	398	373
84	348	323	297	272	247	222	196	171	146	120
85	095	070	044	019	*994	*968	*943	*917	*892	*866
86	.82840	815	789	763	738	712	686	660	635	609
87	583	557	531	505	479	453	427	401	375	349
88	323	297	271	245	219	193	167	140	114	088
89	062	035	009	*983	*956	*930	*903	*877	*850	*824
90	.81797	770	744	717	690	664	637	610	583	556
91	529	502	475	448	421	394	366	339	312	285
92	257	230	203	175	148	120	093	066	038	010
93	.80983	955	928	900	872	844	817	789	761	733
94	705	677	649	621	593	565	537	509	480	452
95	424	395	367	338	310	281	253	224	195	166
96	138	109	080	051	022	*993	*963	*934	*905	*875
97	.79846	816	787	757	727	698	668	638	608	578
98	547	517	487	456	426	396	365	335	305	274
99	243	213	182	151	120	089	059	028	*997	*966
100	.78934									

TABLE 4.—Specific Gravity at $\frac{60°}{60°}$ F $\left(\frac{15°56}{15°56}\text{ C}\right)$ of Mixtures (by Volume) of Ethyl Alcohol and Water

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	*955	*940	*925	*910	*895	*880	*865
1	.99850	835	820	806	791	776	761	747	732	717
2	703	688	674	659	645	630	616	602	587	573
3	559	545	531	516	502	488	474	460	446	432
4	419	405	391	378	364	350	336	323	309	296
5	282	269	255	242	228	215	202	189	176	163
6	150	137	124	111	098	085	073	060	047	035
7	022	009	*997	*984	*972	*960	*947	*935	*923	*911
8	.98899	887	875	863	851	838	826	814	803	791
9	779	767	755	743	731	720	708	696	684	672
10	661	649	637	625	614	602	590	579	567	556
11	544	532	521	509	498	487	475	464	452	441
12	430	419	408	396	385	374	363	352	341	330
13	319	308	297	286	275	264	254	243	232	221
14	210	200	190	179	168	157	147	136	125	115
15	104	093	083	072	062	051	040	030	019	009
16	.97998	988	977	967	956	946	936	925	915	905
17	895	885	875	864	854	844	834	824	814	804
18	794	784	774	764	754	744	734	724	714	704
19	694	684	674	664	654	645	635	625	615	605
20	596	586	576	566	556	546	536	526	516	506
21	496	486	476	466	456	446	436	425	415	405
22	395	385	375	365	354	344	334	324	313	303
23	293	283	272	262	252	241	231	221	210	200
24	189	179	168	158	147	137	126	116	105	095
25	084	073	063	052	042	031	020	010	*999	*988
26	.96978	967	957	946	935	924	914	903	892	881
27	870	859	848	837	826	815	804	793	782	771
28	760	749	738	727	715	704	693	682	671	659
29	648	637	625	614	603	591	580	568	557	546
30	534	522	511	499	488	476	464	453	441	429
31	418	406	394	382	370	358	346	334	321	309
32	296	284	271	259	246	234	221	209	196	183
33	170	157	144	132	119	106	093	080	067	054
34	041	028	015	002	*988	*975	*962	*948	*935	*921
35	.95908	894	881	867	854	840	826	812	798	784
36	770	756	742	728	714	700	685	671	657	643
37	628	614	599	585	570	556	541	526	512	497
38	482	467	452	437	423	408	393	378	362	347
39	332	317	302	286	271	256	240	225	209	194
40	178	162	147	131	115	100	084	068	052	036
41	020	004	*988	*972	*956	*940	*923	*907	*891	*875
42	.94858	842	825	809	792	776	759	743	726	710
43	693	676	660	643	626	609	592	575	558	541
44	524	507	490	473	455	438	421	403	386	369
45	351	334	316	298	281	263	245	228	210	192
46	174	156	138	120	102	084	066	048	030	011
47	.93993	975	956	938	920	901	883	864	845	827
48	808	789	771	752	733	714	695	676	657	638
49	619	600	581	562	543	523	504	485	465	446
50	426	407	387	368	348	328	309	289	270	250

TABLE 4.—Specific Gravity at $\frac{60°}{60°}$ F $\left(\frac{15°56}{15°56}\ C\right)$ of Mixtures (by Volume) of Ethyl Alcohol and Water—Continued

Per Cent Alcohol by Volume at 60° F	Tenths of Per Cent									
	0	1	2	3	4	5	6	7	8	9
50	.93426	407	387	368	348	328	309	289	270	250
51	230	210	190	171	151	131	111	091	071	051
52	031	011	*991	*971	*951	*931	*911	*890	*870	*850
53	.92830	810	789	769	749	728	708	688	667	647
54	626	605	585	564	544	523	502	482	461	440
55	419	398	377	357	336	315	294	273	252	231
56	210	189	168	147	126	105	084	062	041	020
57	.91999	978	956	935	914	892	871	849	827	806
58	784	762	741	719	697	675	653	631	610	588
59	565	543	521	499	477	455	433	410	388	366
60	344	322	299	277	255	232	210	188	165	143
61	120	097	075	052	030	007	*984	*962	*939	*916
62	.90893	870	847	825	802	779	756	733	710	687
63	664	641	618	595	572	549	526	503	480	457
64	434	411	388	365	341	318	295	272	249	225
65	202	179	155	132	108	085	061	038	014	*991
66	.89967	943	920	896	872	848	825	801	777	753
67	729	705	681	657	633	609	585	561	537	513
68	489	465	441	416	392	368	343	319	295	270
69	245	220	196	171	147	122	098	073	048	024
70	.88999	974	950	925	900	875	850	825	801	776
71	751	725	700	675	650	625	600	574	549	524
72	499	474	448	423	397	372	346	321	296	270
73	244	218	193	167	141	116	090	064	039	013
74	.87987	961	935	910	884	858	832	806	780	754
75	728	702	676	650	623	597	571	545	518	492
76	465	439	412	386	359	332	306	279	252	226
77	199	172	145	118	092	065	038	011	*984	*957
78	.86929	902	875	847	820	793	766	738	711	684
79	656	629	601	574	546	518	491	463	435	408
80	380	352	324	296	269	241	213	185	157	129
81	100	072	044	015	*987	*959	*931	*902	*874	*846
82	.85817	789	760	732	703	674	646	617	588	560
83	531	502	473	444	415	386	357	328	299	270
84	240	211	181	152	122	093	063	033	004	*974
85	.84944	914	884	854	824	794	764	734	703	673
86	642	612	581	551	520	490	459	428	398	367
87	336	305	274	243	212	181	150	119	088	056
88	025	*994	*962	*930	*899	*867	*835	*803	*771	*739
89	.83707	675	643	610	578	545	513	480	447	415
90	382	349	315	282	249	216	183	150	116	083
91	049	015	*981	*947	*913	*879	*845	*810	*776	*741
92	.82705	670	635	600	565	529	494	458	423	387
93	351	315	279	243	206	170	133	096	059	022
94	.81984	947	909	871	834	796	757	719	681	642
95	603	564	525	486	446	407	367	327	287	247
96	206	165	125	084	042	001	*960	*918	*876	*834
97	.80792	750	707	664	620	577	533	489	445	401
98	356	311	265	219	173	127	080	033	*985	*937
99	.79889	841	792	743	693	643	593	543	492	441
100	389									

TABLE 5.—Temperature Corrections to Readings of Alcoholometers (Standard at 60° F)

[This table is calculated from the same data on the thermal expansion of ethyl alcohol as that from which Tables 2, 3, 4, 6, 7, and 8 are calculated. The hydrometer is assumed to be of Jena 16^{III} glass. For the per cents not given between 40 and 80, linear interpolation of the tabulated corrections will give results sufficiently exact for most purposes.]

Observed Temperature in Degrees Fahrenheit	Observed Per Cent Alcohol by Volume												
	0	1	2	3	4	5	6	7	8	9	10	11	12
	Add to Observed Per Cent Alcohol												
50	0.37	0.38	0.39	0.40	0.42	0.45	0.48	0.52	0.56	0.61	0.66	0.74	0.81
51	.34	.35	.36	.37	.39	.41	.44	.47	.51	.56	.61	.68	.75
52	.32	.32	.33	.34	.35	.38	.40	.43	.47	.51	.55	.62	.68
53	.29	.30	.30	.31	.32	.34	.36	.39	.42	.46	.49	.55	.60
54	.26	.26	.26	.27	.28	.29	.32	.34	.36	.40	.43	.48	.52
55	.22	.22	.23	.23	.24	.25	.27	.29	.31	.34	.37	.40	.44
56	.18	.18	.18	.18	.19	.20	.22	.24	.25	.28	.30	.33	.36
57	.14	.14	.14	.14	.14	.15	.17	.18	.19	.21	.23	.25	.27
58	.09	.10	.10	.10	.10	.10	.11	.12	.13	.14	.16	.16	.18
59	.05	.05	.05	.05	.05	.05	.06	.06	.06	.07	.08	.08	.09
	Subtract from Observed Per Cent Alcohol												
61		0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.08	0.09	0.10
62		.10	.11	.12	.12	.13	.14	.14	.16	.16	.17	.18	.20
63		.16	.17	.18	.19	.20	.20	.21	.23	.24	.25	.27	.29
64		.22	.23	.24	.25	.26	.27	.29	.31	.32	.34	.37	.39
65		.28	.29	.30	.32	.33	.34	.36	.39	.41	.43	.46	.49
66		.34	.35	.36	.38	.40	.42	.44	.47	.50	.52	.56	.59
67		.41	.42	.43	.45	.47	.50	.52	.55	.58	.61	.65	.70
68		.48	.48	.50	.52	.54	.57	.60	.64	.67	.71	.75	.80
69		.55	.56	.57	.59	.62	.66	.68	.73	.76	.80	.85	.91
70		.62	.63	.64	.67	.70	.74	.77	.81	.86	.90	.96	1.02
72		.77	.78	.80	.83	.86	.90	.94	.99	1.04	1.10	1.16	1.23
74		.93	.94	.96	1.00	1.03	1.09	1.13	1.18	1.25	1.32	1.39	1.46
76			1.10	1.13	1.17	1.21	1.27	1.32	1.38	1.46	1.54	1.61	1.70
78			1.28	1.31	1.35	1.40	1.46	1.52	1.59	1.67	1.76	1.84	1.94
80			1.46	1.50	1.54	1.60	1.66	1.73	1.80	1.89	1.99	2.09	2.20
82			1.64	1.69	1.74	1.80	1.87	1.94	2.02	2.12	2.22	2.34	2.45
84			1.84	1.89	1.94	2.00	2.08	2.16	2.25	2.35	2.47	2.59	2.71
86				2.09	2.15	2.22	2.30	2.39	2.49	2.60	2.72	2.84	2.97
88				2.30	2.37	2.44	2.53	2.62	2.73	2.85	2.98	3.10	3.23
90				2.52	2.59	2.66	2.76	2.86	2.98	3.11	3.24	3.36	3.50
92				2.74	2.82	2.89	3.00	3.11	3.24	3.37	3.51	3.64	3.78
94				2.97	3.04	3.12	3.24	3.36	3.50	3.63	3.78	3.92	4.07
96					3.28	3.36	3.49	3.62	3.76	3.90	4.05	4.20	4.36
98					3.52	3.60	3.74	3.88	4.03	4.17	4.32	4.50	4.66
100					3.76	3.85	4.00	4.15	4.30	4.45	4.60	4.78	4.95

TABLE 5.—Temperature Corrections to Readings of Alcoholometers (Standard at 60° F)—Continued

Observed Temperature in Degrees Fahrenheit	Observed Per Cent Alcohol by Volume											
	13	14	15	16	17	18	19	20	21	22	23	24
	Add to Observed Per Cent Alcohol											
50	0.90	0.99	1.09	1.19	1.30	1.41	1.52	1.62	1.72	1.82	1.90	1.98
51	.82	.90	.99	1.08	1.18	1.28	1.38	1.47	1.56	1.64	1.71	1.79
52	.74	.80	.89	.96	1.06	1.14	1.23	1.31	1.38	1.46	1.52	1.58
53	.65	.71	.78	.85	.94	1.00	1.08	1.15	1.21	1.28	1.34	1.39
54	.57	.62	.68	.74	.81	.86	.94	.99	1.04	1.10	1.15	1.20
55	.48	.52	.57	.62	.68	.72	.78	.83	.87	.92	.96	1.00
56	.38	.42	.46	.49	.54	.58	.63	.67	.69	.74	.77	.80
57	.29	.32	.35	.37	.40	.44	.47	.51	.53	.56	.58	.60
58	.19	.21	.23	.24	.26	.29	.32	.34	.35	.38	.40	.40
59	.10	.11	.12	.12	.13	.14	.16	.17	.18	.19	.20	.20
	Subtract from Observed Per Cent Alcohol											
61	0.10	0.11	0.12	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.18	0.18
62	.21	.22	.24	.26	.27	.29	.30	.32	.34	.36	.37	.38
63	.31	.32	.35	.38	.41	.44	.46	.49	.51	.53	.55	.56
64	.42	.44	.48	.52	.54	.58	.62	.66	.68	.71	.74	.77
65	.52	.55	.60	.65	.68	.73	.78	.82	.85	.90	.92	.96
66	.63	.66	.71	.77	.82	.88	.94	.98	1.02	1.07	1.11	1.16
67	.74	.78	.84	.90	.96	1.03	1.10	1.15	1.20	1.25	1.30	1.35
68	.85	.91	.97	1.03	1.10	1.18	1.26	1.33	1.38	1.44	1.49	1.54
69	.97	1.02	1.10	1.17	1.25	1.33	1.42	1.48	1.54	1.61	1.66	1.72
70	1.08	1.14	1.23	1.31	1.40	1.49	1.58	1.65	1.72	1.78	1.84	1.91
72	1.31	1.39	1.50	1.60	1.70	1.80	1.90	2.00	2.06	2.13	2.20	2.27
74	1.55	1.65	1.76	1.88	1.99	2.10	2.22	2.32	2.41	2.48	2.56	2.65
76	1.80	1.91	2.03	2.16	2.28	2.41	2.54	2.65	2.76	2.84	2.93	3.03
78	2.05	2.17	2.30	2.44	2.58	2.72	2.86	2.98	3.10	3.20	3.30	3.40
80	2.31	2.44	2.58	2.72	2.87	3.02	3.17	3.33	3.45	3.56	3.67	3.78
82	2.57	2.71	2.86	3.00	3.16	3.33	3.50	3.66	3.79	3.92	4.04	4.18
84	2.84	2.98	3.13	3.29	3.46	3.63	3.81	4.00	4.14	4.28	4.42	4.56
86	3.11	3.26	3.41	3.58	3.76	3.94	4.13	4.33	4.49	4.65	4.80	4.94
88	3.38	3.54	3.70	3.88	4.07	4.26	4.46	4.67	4.84	5.00	5.17	5.32
90	3.66	3.83	4.00	4.18	4.38	4.58	4.78	5.01	5.19	5.36	5.53	5.69
92	3.94	4.11	4.29	4.48	4.69	4.90	5.12	5.35	5.54	5.72	5.90	6.07
94	4.23	4.40	4.58	4.79	5.00	5.22	5.46	5.69	5.89	6.08	6.28	6.45
96	4.53	4.69	4.87	5.10	5.32	5.55	5.80	6.03	6.24	6.44	6.64	6.82
98	4.83	5.00	5.18	5.41	5.64	5.88	6.13	6.38	6.60	6.80	7.02	7.20
100	5.13	5.30	5.49	5.72	5.95	6.21	6.46	6.72	6.95	7.17	7.40	7.59

TABLE 5.—Temperature Corrections to Readings of Alcoholometers (Standard at 60° F)—Continued

Observed Temperature in Degrees Fahrenheit	Observed Per Cent Alcohol by Volume										
	25	26	27	28	29	30	31	32	33	34	35
	Add to Observed Per Cent Alcohol										
50	2.06	2.12	2.18	2.24	2.28	2.31	2.32	2.32	2.32	2.31	2.29
51	1.85	1.90	1.96	2.02	2.05	2.08	2.10	2.09	2.09	2.08	2.07
52	1.64	1.69	1.74	1.78	1.82	1.84	1.85	1.86	1.86	1.85	1.84
53	1.44	1.48	1.52	1.56	1.58	1.60	1.61	1.62	1.63	1.62	1.61
54	1.24	1.27	1.30	1.34	1.36	1.36	1.38	1.39	1.40	1.38	1.38
55	1.03	1.06	1.08	1.10	1.12	1.13	1.14	1.15	1.16	1.15	1.15
56	.82	.85	.87	.89	.90	.90	.91	.92	.92	.92	.92
57	.62	.64	.65	.66	.67	.67	.68	.69	.70	.69	.69
58	.41	.42	.43	.44	.44	.44	.45	.46	.46	.46	.46
59	.21	.21	.21	.22	.22	.22	.22	.22	.23	.23	.23
	Subtract from Observed Per Cent Alcohol										
61	0.19	0.20	0.20	0.21	0.22	0.23	0.23	0.23	0.23	0.23	0.23
62	.39	.40	.41	.42	.44	.46	.46	.46	.46	.46	.46
63	.59	.60	.62	.64	.66	.68	.68	.68	.68	.68	.68
64	.79	.80	.83	.86	.88	.91	.91	.91	.91	.91	.91
65	.99	1.00	1.04	1.08	1.10	1.12	1.13	1.13	1.14	1.14	1.14
66	1.19	1.21	1.25	1.30	1.32	1.35	1.36	1.36	1.36	1.36	1.36
67	1.39	1.41	1.45	1.50	1.54	1.57	1.58	1.59	1.60	1.60	1.60
68	1.58	1.64	1.68	1.72	1.76	1.79	1.80	1.81	1.82	1.82	1.82
69	1.77	1.82	1.86	1.91	1.96	2.00	2.02	2.03	2.04	2.04	2.04
70	1.97	2.02	2.08	2.12	2.18	2.22	2.24	2.26	2.27	2.27	2.27
72	2.36	2.42	2.48	2.54	2.60	2.66	2.68	2.70	2.71	2.72	2.72
74	2.74	2.81	2.88	2.96	3.04	3.10	3.12	3.15	3.16	3.18	3.18
76	3.14	3.21	3.30	3.38	3.46	3.52	3.56	3.58	3.60	3.63	3.64
78	3.51	3.61	3.70	3.78	3.86	3.95	3.99	4.03	4.06	4.08	4.09
80	3.90	4.00	4.10	4.19	4.28	4.37	4.42	4.48	4.51	4.53	4.54
82	4.29	4.40	4.50	4.60	4.70	4.80	4.86	4.91	4.95	4.98	5.00
84	4.68	4.80	4.91	5.02	5.12	5.24	5.30	5.35	5.40	5.42	5.44
86	5.07	5.20	5.32	5.44	5.54	5.64	5.72	5.79	5.84	5.88	5.90
88	5.46	5.60	5.72	5.84	5.95	6.06	6.14	6.20	6.26	6.31	6.34
90	5.84	5.98	6.12	6.24	6.36	6.46	6.55	6.62	6.68	6.74	6.78
92	6.23	6.38	6.52	6.66	6.77	6.87	6.97	7.04	7.12	7.18	7.22
94	6.62	6.78	6.93	7.06	7.18	7.29	7.38	7.47	7.54	7.61	7.66
96	7.00	7.17	7.32	7.46	7.60	7.71	7.82	7.90	7.98	8.06	8.10
98	7.40	7.57	7.72	7.87	8.01	8.12	8.24	8.33	8.42	8.50	8.54
100	7.78	7.96	8.12	8.28	8.42	8.55	8.68	8.76	8.84	8.93	9.00

TABLE 5.—Temperature Corrections to Readings of Alcoholometers (Standard at 60° F)—Continued

Observed Temperature in Degrees Fahrenheit	Observed Per Cent Alcohol by Volume										
	36	37	38	39	40	45	50	55	60	65	70
	Add to Observed Per Cent Alcohol										
50	2.28	2.27	2.26	2.25	2.24	2.14	2.04	1.98	1.90	1.85	1.78
51	2.06	2.04	2.03	2.03	2.02	1.91	1.84	1.78	1.71	1.66	1.60
52	1.82	1.80	1.80	1.80	1.79	1.71	1.64	1.58	1.52	1.47	1.42
53	1.60	1.58	1.58	1.58	1.56	1.50	1.44	1.38	1.33	1.29	1.25
54	1.37	1.36	1.36	1.36	1.34	1.28	1.23	1.19	1.14	1.11	1.08
55	1.14	1.13	1.13	1.13	1.11	1.06	1.02	.99	.95	.92	.90
56	.91	.90	.90	.90	.89	.85	.81	.79	.76	.74	.72
57	.68	.67	.68	.68	.67	.64	.61	.59	.57	.55	.54
58	.46	.46	.46	.46	.45	.42	.40	.39	.39	.38	.36
59	.23	.23	.23	.23	.23	.21	.20	.20	.19	.18	.18
	Subtract from Observed Per Cent Alcohol										
61	0.23	0.23	0.23	0.23	0.23	0.22	0.21	0.20	0.20	0.18	0.18
62	.46	.46	.46	.45	.45	.44	.42	.40	.39	.38	.36
63	.68	.68	.68	.68	.68	.66	.62	.60	.58	.56	.54
64	.92	.92	.91	.90	.90	.87	.84	.81	.78	.75	.72
65	1.14	1.14	1.13	1.12	1.12	1.09	1.05	1.01	.97	.94	.90
66	1.37	1.36	1.36	1.35	1.34	1.30	1.25	1.21	1.17	1.13	1.09
67	1.60	1.60	1.60	1.58	1.56	1.52	1.46	1.41	1.37	1.32	1.27
68	1.82	1.82	1.81	1.80	1.79	1.74	1.66	1.61	1.55	1.50	1.45
69	2.04	2.03	2.03	2.03	2.01	1.96	1.88	1.81	1.75	1.69	1.63
70	2.27	2.27	2.26	2.25	2.24	2.17	2.09	2.02	1.95	1.88	1.82
72	2.72	2.72	2.72	2.70	2.68	2.61	2.51	2.42	2.34	2.26	2.18
74	3.18	3.17	3.17	3.16	3.14	3.04	2.93	2.83	2.73	2.65	2.56
76	3.63	3.62	3.62	3.60	3.58	3.47	3.35	3.24	3.13	3.03	2.93
78	4.09	4.08	4.07	4.06	4.02	3.92	3.78	3.64	3.53	3.42	3.30
80	4.54	4.53	4.52	4.50	4.48	4.36	4.20	4.05	3.93	3.80	3.68
82	5.00	4.98	4.98	4.96	4.94	4.81	4.63	4.47	4.33	4.19	4.06
84	5.45	5.44	5.43	5.40	5.38	5.25	5.06	4.88	4.73	4.58	4.44
86	5.90	5.89	5.88	5.86	5.84	5.70	5.49	5.30	5.14	4.98	4.82
88	6.35	6.34	6.33	6.31	6.29	6.14	5.92	5.72	5.54	5.37	5.20
90	6.80	6.80	6.78	6.76	6.73	6.58	6.36	6.14	5.95	5.76	5.59
92	7.25	7.25	7.22	7.20	7.18	7.03	6.80	6.56	6.36	6.16	5.98
94	7.70	7.70	7.67	7.66	7.63	7.48	7.24	6.98	6.77	6.56	6.37
96	8.14	8.15	8.12	8.11	8.08	7.92	7.68	7.40	7.19	6.96	6.76
98	8.58	8.60	8.58	8.56	8.54	8.36	8.11	7.82	7.60	7.36	7.15
100	9.03	9.04	9.03	9.01	8.98	8.81	8.45	8.25	8.02	7.76	7.54

76058°—13——3

TABLE 5.—Temperature Corrections to Readings of Alcoholometers (Standard at 60° F)—Continued

Observed Temperature in Degrees Fahrenheit	Observed Per Cent Alcohol by Volume										
	75	80	81	82	83	84	85	86	87	88	89
	Add to Observed Per Cent Alcohol										
50	1.71	1.63	1.62	1.60	1.58	1.56	1.53	1.51	1.48	1.46	1.43
51	1.54	1.47	1.46	1.44	1.42	1.40	1.38	1.36	1.33	1.31	1.28
52	1.36	1.30	1.30	1.28	1.26	1.24	1.22	1.20	1.18	1.16	1.14
53	1.20	1.15	1.14	1.12	1.11	1.09	1.07	1.06	1.04	1.02	1.00
54	1.04	.98	.98	.96	.95	.94	.92	.91	.89	.88	.86
55	.87	.82	.81	.80	.79	.78	.76	.75	.74	.74	.72
56	.70	.66	.65	.64	.63	.62	.61	.60	.59	.58	.57
57	.53	.49	.49	.49	.48	.47	.46	.46	.45	.44	.43
58	.34	.32	.32	.32	.31	.30	.30	.30	.30	.29	.28
59	.17	.16	.16	.16	.16	.15	.15	.15	.15	.15	.14
	Subtract from Observed Per Cent Alcohol										
61	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.15
62	.34	.34	.34	.32	.32	.32	.32	.31	.31	.31	.30
63	.52	.50	.50	.48	.48	.48	.48	.47	.46	.46	.44
64	.70	.68	.66	.65	.65	.64	.63	.62	.61	.60	.59
65	.86	.84	.82	.82	.81	.80	.79	.78	.77	.76	.74
66	1.05	1.00	.99	.98	.97	.96	.94	.93	.92	.90	.88
67	1.22	1.17	1.16	1.14	1.13	1.12	1.10	1.09	1.08	1.06	1.02
68	1.40	1.33	1.32	1.31	1.29	1.28	1.26	1.24	1.22	1.20	1.17
69	1.57	1.50	1.49	1.47	1.46	1.44	1.42	1.40	1.38	1.36	1.32
70	1.75	1.68	1.66	1.64	1.62	1.60	1.58	1.56	1.54	1.51	1.48
72	2.10	2.02	2.00	1.97	1.95	1.93	1.90	1.88	1.85	1.82	1.78
74	2.46	2.36	2.34	2.30	2.28	2.26	2.24	2.20	2.17	2.13	2.09
76	2.81	2.70	2.68	2.64	2.61	2.59	2.56	2.52	2.48	2.44	2.40
78	3.18	3.04	3.02	2.98	2.94	2.92	2.88	2.84	2.80	2.76	2.71
80	3.54	3.38	3.36	3.32	3.28	3.26	3.22	3.17	3.13	3.08	3.02
82	3.90	3.72	3.71	3.66	3.62	3.59	3.54	3.50	3.45	3.40	3.33
84	4.27	4.08	4.05	4.00	3.96	3.92	3.88	3.83	3.77	3.72	3.65
86	4.64	4.43	4.39	4.35	4.30	4.26	4.21	4.16	4.10	4.04	3.96
88	5.00	4.78	4.75	4.70	4.65	4.60	4.55	4.50	4.44	4.37	4.29
90	5.37	5.14	5.10	5.06	5.00	4.95	4.88	4.83	4.77	4.70	4.61
92	5.75	5.50	5.46	5.42	5.36	5.30	5.23	5.18	5.10	5.03	4.94
94	6.12	5.86	5.81	5.76	5.70	5.64	5.58	5.51	5.44	5.36	5.26
96	6.50	6.23	6.17	6.12	6.06	5.99	5.92	5.86	5.78	5.69	5.59
98	6.88	6.60	6.50	6.48	6.41	6.34	6.26	6.20	6.11	6.02	5.92
100	7.26	6.96	6.89	6.84	6.76	6.70	6.61	6.54	6.44	6.36	6.26

TABLE 5.—Temperature Corrections to Readings of Alcoholometers (Standard at 60° F)—Continued

Observed Temperature in Degrees Fahrenheit	Observed Per Cent Alcohol by Volume										
	90	91	92	93	94	95	96	97	98	99	100
	Add to Observed Per Cent Alcohol										
50	1.39	1.36	1.32	1.27	1.22	1.17	1.12	1.06	0.99	0.93	.....
51	1.25	1.22	1.18	1.14	1.10	1.06	1.01	.95	.89	.84	.....
52	1.12	1.09	1.06	1.02	.98	.94	.90	.85	.79	.74	.....
53	.98	.96	.93	.90	.86	.83	.79	.74	.70	.65	.....
54	.84	.82	.80	.77	.74	.72	.68	.64	.60	.56	.....
55	.70	.69	.66	.64	.62	.60	.57	.53	.50	.47	.....
56	.56	.55	.53	.52	.49	.48	.45	.43	.40	.38	.....
57	.42	.41	.40	.39	.37	.36	.34	.32	.30	.29	.....
58	.28	.27	.26	.26	.24	.24	.23	.21	.20	.19	.....
59	.14	.14	.13	.13	.12	.12	.12	.11	.10	.10	.....
	Subtract from Observed Per Cent Alcohol										
61	0.15	0.14	0.14	0.13	0.13	0.12	0.12	0.11	0.10	0.10	0.09
62	.29	.28	.27	.26	.25	.24	.23	.22	.21	.19	.18
63	.43	.42	.41	.39	.38	.36	.35	.33	.31	.29	.27
64	.58	.55	.54	.52	.51	.49	.46	.44	.41	.39	.36
65	.72	.70	.68	.66	.64	.61	.58	.55	.52	.49	.46
66	.86	.84	.82	.79	.76	.73	.70	.67	.63	.59	.55
67	1.00	.98	.96	.93	.90	.86	.82	.78	.74	.70	.64
68	1.15	1.12	1.09	1.06	1.02	.98	.94	.90	.85	.80	.74
69	1.30	1.26	1.23	1.20	1.16	1.10	1.06	1.02	.96	.90	.84
70	1.45	1.41	1.37	1.34	1.29	1.23	1.19	1.14	1.07	1.00	.94
72	1.74	1.70	1.65	1.61	1.55	1.49	1.43	1.37	1.30	1.22	1.13
74	2.05	2.00	1.94	1.89	1.82	1.75	1.69	1.61	1.53	1.43	1.33
76	2.35	2.29	2.23	2.17	2.09	2.01	1.94	1.85	1.76	1.65	1.53
78	2.65	2.59	2.52	2.46	2.36	2.28	2.20	2.10	2.00	1.87	1.73
80	2.96	2.89	2.82	2.74	2.64	2.56	2.46	2.35	2.24	2.09	1.93
82	3.26	3.20	3.12	3.03	2.92	2.84	2.72	2.60	2.48	2.32	2.14
84	3.57	3.50	3.39	3.32	3.21	3.10	2.96	2.86	2.73	2.56	2.36
86	3.89	3.80	3.72	3.62	3.51	3.38	3.26	3.13	2.98	2.80	2.58
88	4.20	4.12	4.02	3.91	3.80	3.66	3.54	3.39	3.24	3.06	2.81
90	4.52	4.42	4.32	4.20	4.08	3.94	3.81	3.66	3.50	3.30	3.03
92	4.84	4.74	4.62	4.50	4.38	4.23	4.10	3.93	3.76	3.55	3.26
94	5.16	5.06	4.94	4.80	4.67	4.52	4.38	4.20	4.02	3.80	3.50
96	5.49	5.39	5.25	5.11	4.97	4.82	4.67	4.48	4.29	4.06	3.73
98	5.82	5.70	5.56	5.42	5.27	5.12	4.95	4.76	4.55	4.31	3.96
100	6.15	6.02	5.88	5.74	5.58	5.42	5.24	5.04	4.82	4.56	4.21

TABLE 6.—Percentages by Volume at 60° F, Corresponding to Various Percentages 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	0.000	0.126	0.252	0.378	0.504	0.630	0.755	0.881	1.007	1.132
1	1.257	1.382	1.508	1.633	1.759	1.884	2.009	2.134	2.260	2.385
2	2.510	2.635	2.760	2.885	3.010	3.135	3.259	3.384	3.509	3.633
3	3.758	3.883	4.007	4.132	4.256	4.381	4.505	4.629	4.754	4.878
4	5.002	5.126	5.250	5.374	5.499	5.623	5.747	5.871	5.995	6.119
5	6.243	6.367	6.491	6.614	6.738	6.862	6.985	7.109	7.232	7.356
6	7.479	7.602	7.726	7.849	7.972	8.096	8.219	8.342	8.466	8.589
7	8.712	8.835	8.958	9.081	9.205	9.328	9.451	9.574	9.697	9.820
8	9.943	10.066	10.189	10.311	10.434	10.557	10.679	10.802	10.925	11.047
9	11.169	11.292	11.414	11.536	11.659	11.781	11.904	12.026	12.149	12.271
10	12.393	12.515	12.637	12.760	12.882	13.004	13.126	13.248	13.370	13.492
11	13.613	13.735	13.857	13.979	14.101	14.223	14.345	14.466	14.588	14.710
12	14.832	14.954	15.075	15.197	15.319	15.440	15.562	15.683	15.805	15.926
13	16.047	16.168	16.290	16.411	16.532	16.654	16.775	16.896	17.017	17.138
14	17.259	17.380	17.501	17.622	17.743	17.864	17.985	18.106	18.227	18.348
15	18.469	18.590	18.711	18.832	18.952	19.073	19.194	19.315	19.435	19.556
16	19.676	19.797	19.917	20.038	20.158	20.279	20.399	20.519	20.640	20.760
17	20.880	21.000	21.120	21.241	21.361	21.481	21.601	21.721	21.841	21.961
18	22.081	22.201	22.321	22.441	22.561	22.680	22.800	22.919	23.039	23.159
19	23.278	23.398	23.517	23.636	23.756	23.876	23.995	24.114	24.234	24.353
20	24.472	24.591	24.710	24.829	24.949	25.068	25.187	25.305	25.424	25.543
21	25.662	25.781	25.900	26.018	26.137	26.256	26.375	26.493	26.612	26.730
22	26.849	26.968	27.086	27.204	27.323	27.441	27.559	27.677	27.796	27.914
23	28.032	28.150	28.268	28.386	28.504	28.622	28.740	28.858	28.976	29.093
24	29.210	29.328	29.446	29.563	29.681	29.799	29.917	30.035	30.152	30.270
25	30.388	30.505	30.622	30.739	30.855	30.972	31.089	31.205	31.322	31.438
26	31.555	31.672	31.788	31.905	32.021	32.138	32.254	32.370	32.487	32.603
27	32.719	32.835	32.951	33.068	33.184	33.300	33.416	33.532	33.647	33.763
28	33.879	33.995	34.111	34.227	34.342	34.458	34.573	34.688	34.803	34.918
29	35.033	35.148	35.263	35.378	35.493	35.608	35.723	35.838	35.952	36.066
30	36.181	36.296	36.410	36.524	36.639	36.753	36.867	36.981	37.095	37.209
31	37.323	37.437	37.551	37.664	37.778	37.892	38.005	38.119	38.232	38.346
32	38.459	38.572	38.686	38.799	38.912	39.025	39.138	39.251	39.364	39.477
33	39.590	39.703	39.816	39.928	40.041	40.154	40.266	40.379	40.492	40.604
34	40.716	40.828	40.940	41.052	41.163	41.275	41.386	41.498	41.609	41.721
35	41.832	41.943	42.055	42.166	42.277	42.389	42.500	42.611	42.722	42.833
36	42.944	43.055	43.165	43.276	43.387	43.498	43.608	43.719	43.829	43.939
37	44.050	44.160	44.270	44.381	44.490	44.600	44.710	44.820	44.930	45.039
38	45.149	45.259	45.368	45.478	45.587	45.696	45.806	45.915	46.024	46.133
39	46.242	46.351	46.460	46.569	46.678	46.786	46.895	47.003	47.112	47.220
40	47.328	47.436	47.544	47.652	47.760	47.868	47.976	48.084	48.192	48.299
41	48.407	48.515	48.622	48.730	48.837	48.945	49.052	49.159	49.266	49.373
42	49.480	49.587	49.694	49.801	49.907	50.014	50.120	50.226	50.333	50.439
43	50.545	50.651	50.757	50.864	50.970	51.076	51.182	51.288	51.394	51.499
44	51.605	51.711	51.816	51.922	52.027	52.132	52.238	52.343	52.448	52.553
45	52.658	52.763	52.868	52.973	53.078	53.182	53.287	53.392	53.496	53.601
46	53.705	53.809	53.914	54.018	54.122	54.226	54.330	54.434	54.538	54.642
47	54.746	54.850	54.954	55.057	55.161	55.264	55.368	55.471	55.574	55.677
48	55.780	55.883	55.986	56.089	56.192	56.295	56.398	56.500	56.603	56.706
49	56.808	56.910	57.013	57.116	57.218	57.320	57.422	57.522	57.626	57.728
50	57.830	57.932	58.034	58.135	58.237	58.338	58.440	58.541	58.642	58.743

TABLE 6.—Percentages by Volume at 60° F, Corresponding to Various Percentages 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	57.830	57.932	58.034	58.135	58.237	58.338	58.440	58.541	58.642	58.743
51	58.844	58.945	59.046	59.147	59.248	59.349	59.450	59.550	59.651	59.752
52	59.852	59.952	60.053	60.154	60.254	60.354	60.454	60.554	60.654	60.754
53	60.854	60.954	61.054	61.154	61.254	61.353	61.453	61.552	61.652	61.751
54	61.850	61.949	62.048	62.147	62.246	62.344	62.443	62.542	62.640	62.738
55	62.837	62.936	63.034	63.132	63.231	63.329	63.427	63.526	63.624	63.722
56	63.820	63.918	64.016	64.114	64.212	64.310	64.408	64.505	64.603	64.701
57	64.798	64.895	64.993	65.090	65.188	65.285	65.382	65.479	65.575	65.672
58	65.768	65.865	65.961	66.058	66.154	66.251	66.347	66.444	66.540	66.636
59	66.732	66.828	66.924	67.020	67.116	67.212	67.308	67.404	67.499	67.595
60	67.690	67.785	67.881	67.976	68.071	68.166	68.261	68.356	68.451	68.546
61	68.641	68.736	68.831	68.925	69.020	69.115	69.209	69.304	69.398	69.492
62	69.586	69.580	69.774	69.868	69.962	70.056	70.149	70.243	70.336	70.430
63	70.523	70.616	70.710	70.803	70.897	70.990	71.083	71.176	71.269	71.362
64	71.455	71.548	71.641	71.733	71.826	71.918	72.011	72.103	72.196	72.288
65	72.380	72.472	72.564	72.656	72.748	72.840	72.932	73.024	73.116	73.207
66	73.299	73.391	73.482	73.574	73.665	73.756	73.847	73.938	74.029	74.120
67	74.211	74.302	74.393	74.484	74.575	74.665	74.756	74.846	74.937	75.027
68	75.117	75.207	75.297	75.387	75.477	75.567	75.657	75.747	75.837	75.926
69	76.016	76.106	76.195	76.285	76.374	76.464	76.553	76.642	76.731	76.820
70	76.909	76.998	77.087	77.176	77.264	77.353	77.441	77.529	77.618	77.706
71	77.794	77.882	77.970	78.058	78.146	78.234	78.322	78.410	78.497	78.584
72	78.672	78.760	78.847	78.934	79.022	79.109	79.196	79.283	79.370	79.457
73	79.544	79.631	79.718	79.805	79.892	79.978	80.065	80.151	80.238	80.324
74	80.410	80.496	80.582	80.668	80.754	80.840	80.926	81.012	81.098	81.183
75	81.269	81.355	81.440	81.526	81.611	81.696	81.781	81.866	81.951	82.036
76	82.121	82.206	82.291	82.376	82.461	82.545	82.630	82.714	82.799	82.883
77	82.967	83.051	83.135	83.219	83.303	83.387	83.471	83.555	83.638	83.722
78	83.805	83.888	83.972	84.055	84.138	84.221	84.304	84.387	84.470	84.553
79	84.636	84.719	84.801	84.884	84.966	85.049	85.131	85.213	85.295	85.377
80	85.459	85.541	85.623	85.705	85.787	85.868	85.950	86.031	86.113	86.194
81	86.275	86.356	86.437	86.518	86.599	86.680	86.761	86.842	86.922	87.002
82	87.083	87.164	87.244	87.324	87.405	87.485	87.565	87.645	87.725	87.805
83	87.885	87.965	88.045	88.124	88.204	88.283	88.362	88.441	88.520	88.599
84	88.678	88.757	88.836	88.915	88.994	89.072	89.151	89.229	89.308	89.386
85	89.464	89.542	89.620	89.698	89.776	89.854	89.932	90.009	90.086	90.163
86	90.240	90.317	90.394	90.471	90.548	90.625	90.702	90.779	90.855	90.932
87	91.008	91.084	91.161	91.237	91.313	91.388	91.464	91.540	91.615	91.691
88	91.766	91.841	91.917	91.992	92.068	92.143	92.218	92.293	92.367	92.442
89	92.517	92.591	92.666	92.740	92.814	92.888	92.962	93.035	93.108	93.181
90	93.254	93.327	93.400	93.473	93.546	93.619	93.692	93.764	93.837	93.910
91	93.982	94.054	94.126	94.198	94.270	94.342	94.414	94.486	94.557	94.629
92	94.700	94.771	94.842	94.913	94.984	95.055	95.126	95.196	95.267	95.337
93	95.407	95.477	95.547	95.617	95.687	95.757	95.826	95.896	95.965	96.034
94	96.103	96.172	96.241	96.310	96.378	96.447	96.515	96.583	96.652	96.720
95	96.787	96.855	96.922	96.990	97.057	97.125	97.192	97.259	97.326	97.392
96	97.459	97.526	97.592	97.658	97.724	97.790	97.856	97.921	97.987	98.052
97	98.117	98.182	98.247	98.312	98.376	98.440	98.505	98.569	98.633	98.696
98	98.759	98.822	98.886	98.949	99.012	99.075	99.137	99.200	99.262	99.324
99	99.386	99.448	99.510	99.572	99.633	99.695	99.756	99.817	99.878	99.939
100	100.000									

TABLE 7.—Percentages by Weight, Corresponding to Various Percentages by Volume at 60° F in 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
0	0.000		50	42.487	
1	0.795	0.795	51	43.428	0.941
2	1.593	.798	52	44.374	.946
3	2.392	.799	53	45.326	.952
4	3.194	.802	54	46.283	.957
		.804			.962
5	3.998		55	47.245	
6	4.804	.806	56	48.214	.969
7	5.612	.808	57	49.187	.973
8	6.422	.810	58	50.167	.980
9	7.234	.812	59	51.154	.987
		.813			.993
10	8.047		60	52.147	
11	8.862	.815	61	53.146	.999
12	9.679	.817	62	54.152	1.006
13	10.497	.818	63	55.165	1.013
14	11.317	.820	64	56.184	1.019
		.821			1.024
15	12.138		65	57.208	
16	12.961	.823	66	58.241	1.033
17	13.786	.825	67	59.279	1.038
18	14.612	.826	68	60.325	1.046
19	15.440	.828	69	61.379	1.054
		.829			1.062
20	16.269		70	62.441	
21	17.100	.831	71	63.511	1.070
22	17.933	.833	72	64.588	1.077
23	18.768	.835	73	65.674	1.086
24	19.604	.836	74	66.768	1.094
		.839			1.102
25	20.443		75	67.870	
26	21.285	.842	76	68.982	1.112
27	22.127	.842	77	70.102	1.120
28	22.973	.846	78	71.234	1.132
29	23.820	.847	79	72.375	1.141
		.850			1.151
30	24.670		80	73.526	
31	25.524	.854	81	74.686	1.160
32	26.382	.858	82	75.858	1.172
33	27.242	.860	83	77.039	1.181
34	28.104	.862	84	78.233	1.194
		.867			1.208
35	28.971		85	79.441	
36	29.842	.871	86	80.662	1.221
37	30.717	.875	87	81.897	1.235
38	31.596	.879	88	83.144	1.247
39	32.478	.882	89	84.408	1.264
		.886			1.281
40	33.364		90	85.689	
41	34.254	.890	91	86.989	1.300
42	35.150	.896	92	88.310	1.321
43	36.050	.900	93	89.652	1.342
44	36.955	.905	94	91.025	1.373
		.910			1.398
45	37.865		95	92.423	
46	38.778	.913	96	93.851	1.428
47	39.697	.919	97	95.315	1.464
48	40.622	.925	98	96.820	1.505
49	41.551	.929	99	98.381	1.561
		.936			1.619
50	42.487		100	100.000	

TABLE 8.—Temperature Corrections to Readings of Alcoholometers (Standard at 20° C)

[This table is calculated from the same data on the thermal expansion of ethyl alcohol as that from which tables 2, 3, 4, 5, 6, and 7 are calculated. The hydrometer is assumed to be of Jena 16^{III} glass]

Observed Temperature in Degrees Centigrade	Observed Per Cent Alcohol by Weight																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
	Add to Observed Per Cent Alcohol																				
10	0.67	0.91	1.47	2.43	3.18	3.55	3.59	3.55	3.49	3.47	3.45	3.45	3.45	3.45	3.43	3.42	3.36	3.26	3.08	2.86	
11	.63	.84	1.35	2.20	2.84	3.19	3.24	3.20	3.14	3.11	3.10	3.10	3.10	3.10	3.09	3.08	3.03	2.93	2.78	2.58	
12	.59	.78	1.22	1.96	2.51	2.83	2.88	2.85	2.79	2.77	2.76	2.76	2.76	2.76	2.75	2.73	2.70	2.61	2.48	2.31	
13	.54	.70	1.09	1.71	2.19	2.47	2.52	2.51	2.44	2.42	2.42	2.42	2.42	2.42	2.41	2.39	2.36	2.30	2.18	2.03	
14	.48	.62	.95	1.47	1.86	2.11	2.16	2.15	2.10	2.08	2.07	2.07	2.07	2.07	2.06	2.05	2.03	1.98	1.88	1.75	
15	.41	.53	.80	1.23	1.55	1.76	1.79	1.78	1.75	1.73	1.73	1.73	1.73	1.73	1.72	1.71	1.69	1.65	1.57	1.46	
16	.34	.44	.65	.98	1.23	1.41	1.44	1.43	1.41	1.39	1.38	1.38	1.38	1.38	1.37	1.36	1.35	1.32	1.26	1.17	
17	.26	.34	.5	.73	.92	1.06	1.08	1.08	1.06	1.04	1.04	1.04	1.04	1.04	1.03	1.02	1.01	.99	.95	.89	
18	.18	.23	.34	.49	.61	.71	.72	.72	.71	.69	.69	.69	.69	.69	.69	.69	.68	.66	.64	.59	
19	.09	.12	.17	.24	.30	.35	.36	.36	.36	.35	.35	.35	.35	.35	.35	.35	.34	.33	.32	.30	
	Subtract from Observed Per Cent Alcohol																				
21		0.13	0.17	0.24	0.29	0.33	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.34	0.34	0.34	0.33	0.32	0.30	0.27
22		.26	.34	.48	.59	.66	.70	.70	.70	.70	.70	.70	.70	.70	.69	.69	.68	.66	.64	.60	.54
23		.39	.52	.73	.90	1.01	1.06	1.06	1.05	1.04	1.04	1.04	1.04	1.04	1.03	1.02	1.01	1.00	.97	.90	.81
24		.53	.70	.98	1.20	1.36	1.41	1.41	1.40	1.39	1.39	1.39	1.39	1.39	1.39	1.38	1.36	1.35	1.29	1.20	1.09
25		.67	.89	1.22	1.50	1.72	1.77	1.77	1.76	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.73	1.72	1.68	1.62	1.51	1.36
26		.81	1.08	1.46	1.80	2.04	2.11	2.12	2.11	2.10	2.10	2.10	2.10	2.10	2.10	2.09	2.06	2.02	1.95	1.82	1.65
27		.96	1.27	1.71	2.09	2.38	2.47	2.47	2.46	2.45	2.45	2.45	2.45	2.45	2.45	2.44	2.40	2.37	2.28	2.13	1.92
28		1.12	1.46	1.96	2.39	2.71	2.82	2.83	2.82	2.81	2.80	2.80	2.80	2.80	2.80	2.79	2.75	2.71	2.61	2.45	2.21
29		1.28	1.65	2.20	2.69	3.04	3.17	3.18	3.17	3.16	3.15	3.15	3.15	3.15	3.15	3.14	3.10	3.06	2.94	2.76	2.49
30		1.44	1.84	2.45	2.99	3.38	3.51	3.54	3.52	3.50	3.50	3.50	3.50	3.50	3.50	3.49	3.46	3.41	3.27	3.08	2.78
31		1.61	2.05	2.69	3.28	3.70	3.86	3.89	3.87	3.86	3.86	3.86	3.86	3.86	3.86	3.84	3.82	3.75	3.61	3.40	3.07
32		1.79	2.26	2.93	3.58	4.03	4.20	4.25	4.24	4.22	4.22	4.22	4.22	4.22	4.22	4.19	4.17	4.10	3.95	3.72	3.37
33		1.96	2.46	3.18	3.87	4.35	4.55	4.60	4.59	4.58	4.58	4.58	4.58	4.58	4.58	4.57	4.55	4.53	4.45	4.29	4.04	3.66
34		2.13	2.67	3.44	4.16	4.67	4.90	4.95	4.94	4.93	4.93	4.93	4.93	4.93	4.92	4.91	4.89	4.80	4.63	4.36	3.96
35		2.31	2.88	3.70	4.46	5.00	5.25	5.30	5.29	5.27	5.27	5.27	5.27	5.28	5.28	5.27	5.24	5.15	4.98	4.69	4.26
36		2.50	3.10	3.94	4.76	5.31	5.59	5.66	5.65	5.64	5.64	5.64	5.64	5.65	5.65	5.63	5.60	5.51	5.32	5.02	4.56
37		2.69	3.32	4.19	5.06	5.64	5.93	6.02	6.01	5.98	5.98	5.98	5.98	5.99	6.00	5.99	5.95	5.86	5.67	5.35	4.87
38		2.87	3.54	4.44	5.35	5.96	6.27	6.37	6.36	6.34	6.34	6.34	6.34	6.35	6.37	6.35	6.31	6.21	6.02	5.68	5.17
39		3.06	3.77	4.70	5.64	6.28	6.62	6.72	6.71	6.70	6.69	6.69	6.70	6.72	6.73	6.71	6.67	6.56	6.37	6.01	5.49
40		3.25	3.99	4.96	5.94	6.60	6.97	7.06	7.06	7.06	7.06	7.06	7.07	7.08	7.08	7.07	7.03	6.93	6.73	6.36	5.82

TABLE 9.—Density at 15° C of Mixtures (by weight) of Methyl Alcohol and Water

[Calculated from the specific gravity determinations of Doroshevskii and Rozhdestvenskii at $\frac{15°}{15°}$C[3]]

Per Cent Methyl Alcohol by Weight	$D\frac{15°}{4°}C$	Differences	Per Cent Methyl Alcohol by Weight	$D\frac{15°}{4°}C$	Differences
0	0.99913		50	0.91852	
		0.00186			0.00199
1	.99727	184	51	.91653	202
2	.99543	173	52	.91451	203
3	.99370	172	53	.91248	204
4	.99198	169	54	.91044	205
5	.99029		55	.90839	
		165			208
6	.98864	163	56	.90631	210
7	.98701	154	57	.90421	211
8	.98547	153	58	.90210	214
9	.98394	153	59	.89996	215
10	.98241		60	.89781	
		148			218
11	.98093	148	61	.89563	222
12	.97945	143	62	.89341	224
13	.97802	142	63	.89117	227
14	.97660	142	64	.88890	228
15	.97518		65	.88662	
		141			229
16	.97377	140	66	.88433	230
17	.97237	141	67	.88203	232
18	.97096	141	68	.87971	232
19	.96955	141	69	.87739	232
20	.96814		70	.87507	
		141			236
21	.96673	140	71	.87271	238
22	.96533	141	72	.87033	241
23	.96392	141	73	.86792	246
24	.96251	143	74	.86546	246
25	.96108		75	.86300	
		145			249
26	.95963	146	76	.86051	250
27	.95817	149	77	.85801	250
28	.95668	150	78	.85551	251
29	.95518	152	79	.85300	252
30	.95366		80	.85048	
		153			254
31	.95213	157	81	.84794	258
32	.95056	160	82	.84536	262
33	.94896	162	83	.84274	265
34	.94734	164	84	.84009	267
35	.94570		85	.83742	
		166			267
36	.94404	167	86	.83475	268
37	.94237	170	87	.83207	270
38	.94067	173	88	.82937	270
39	.93894	174	89	.82667	271
40	.93720		90	.82396	
		177			272
41	.93543	178	91	.82124	275
42	.93365	180	92	.81849	281
43	.93185	184	93	.81568	283
44	.93001	186	94	.81285	286
45	.92815		95	.80999	
		188			286
46	.92627	191	96	.80713	285
47	.92436	194	97	.80428	285
48	.92242	194	98	.80143	284
49	.92048	196	99	.79859	282
50	.91852		100	.79577	

[3] J. Russ., Phys. Chem. Soc., 41, pp. 977–996; 1909.

TABLE 10.—Specific Gravity at $\frac{15°}{15°}$ C of Mixtures (by Volume) of Methyl Alcohol and Water

[Calculated from the same data as Table 9]

Per Cent Methyl Alcohol by Volume at 15 C	D $\frac{15°}{15°}$ C	Differences	Per Cent Methyl Alcohol by Volume at 15 C	D $\frac{15°}{15°}$ C	Differences
0	1.00000		50	0.93326	
		0.00149			0.00171
1	.99851	148	51	.93155	173
2	.99703	143	52	.92982	176
3	.99560	138	53	.92806	180
4	.99422	139	54	.92626	183
5	.99283	137	55	.92443	187
6	.99146	135	56	.92256	189
7	.99011	134	57	.92067	190
8	.98877	131	58	.91877	195
9	.98746	125	59	.91682	199
10	.98621	125	60	.91483	201
11	.98496	126	61	.91282	203
12	.98370	123	62	.91079	206
13	.98247	122	63	.90873	210
14	.98125	122	64	.90663	213
15	.98003	119	65	.90450	216
16	.97884	118	66	.90234	220
17	.97766	118	67	.90014	224
18	.97648	118	68	.89790	229
19	.97530	117	69	.89561	234
20	.97413	118	70	.89327	239
21	.97295	118	71	.89088	244
22	.97177	119	72	.88844	248
23	.97058	119	73	.88596	250
24	.96939	119	74	.88346	254
25	.96820	120	75	.88092	256
26	.96700	120	76	.87836	258
27	.96580	121	77	.87578	266
28	.96459	121	78	.87312	272
29	.96338	122	79	.87040	280
30	.96216	125	80	.86760	286
31	.96091	125	81	.86474	294
32	.95966	128	82	.86180	297
33	.95838	130	83	.85883	301
34	.95708	132	84	.85582	306
35	.95576	133	85	.85276	309
36	.95443	135	86	.84967	321
37	.95308	138	87	.84646	332
38	.95170	141	88	.84314	343
39	.95029	143	89	.83971	348
40	.94886	145	90	.83623	354
41	.94741	148	91	.83269	362
42	.94593	150	92	.82907	369
43	.94443	152	93	.82538	375
44	.94291	155	94	.82163	391
45	.94136	157	95	.81772	409
46	.93979	159	96	.81363	421
47	.93820	163	97	.80942	428
48	.93657	164	98	.80514	432
49	.93493	167	99	.80082	435
50	.93326		100	.79647	

TABLE 11.—Percentages by Volume at 15° C, Corresponding to Various Percentages by Weight in Mixtures of Methyl Alcohol and Water

Per Cent by Weight	Per Cent by Volume at 15° C	Differences	Per Cent by Weight	Per Cent by Volume at 15° C	Differences
0	0.000		50	57.712	
		1.253			1.027
1	1.253		51	58.739	
		1.249			1.020
2	2.502		52	59.759	
		1.244			1.014
3	3.746		53	60.773	
		1.240			1.008
4	4.986		54	61.781	
		1.236			1.002
5	6.222		55	62.783	
		1.232			.995
6	7.454		56	63.778	
		1.228			.989
7	8.682		57	64.767	
		1.225			.983
8	9.907		58	65.750	
		1.221			.975
9	11.128		59	66.725	
		1.217			.968
10	12.345		60	67.693	
		1.214			.961
11	13.559		61	68.654	
		1.211			.953
12	14.770		62	69.607	
		1.207			.945
13	15.977		63	70.552	
		1.204			.938
14	17.181		64	71.490	
		1.201			.930
15	18.382		65	72.420	
		1.197			.924
16	19.579		66	73.344	
		1.194			.918
17	20.773		67	74.262	
		1.190			.910
18	21.963		68	75.172	
		1.186			.905
19	23.149		69	76.077	
		1.183			.899
20	24.332		70	76.976	
		1.180			.888
21	25.512		71	77.864	
		1.176			.882
22	26.688		72	78.746	
		1.172			.872
23	27.860		73	79.618	
		1.169			.862
24	29.029		74	80.480	
		1.164			.856
25	30.193		75	81.336	
		1.161			.846
26	31.354		76	82.182	
		1.156			.840
27	32.510		77	83.022	
		1.152			.833
28	33.662		78	83.855	
		1.147			.825
29	34.809		79	84.680	
		1.143			.819
30	35.952		80	85.499	
		1.139			.811
31	37.091		81	86.310	
		1.133			.800
32	38.224		82	87.110	
		1.128			.789
33	39.352		83	87.899	
		1.124			.778
34	40.476		84	88.677	
		1.118			.771
35	41.594		85	89.448	
		1.114			.764
36	42.708		86	90.212	
		1.108			.756
37	43.816		87	90.968	
		1.103			.748
38	44.919		88	91.716	
		1.097			.740
39	46.016		89	92.456	
		1.093			.732
40	47.109		90	93.188	
		1.086			.724
41	48.195		91	93.912	
		1.082			.715
42	49.277		92	94.627	
		1.076			.699
43	50.353		93	95.326	
		1.069			.691
44	51.422		94	96.017	
		1.064			.680
45	52.486		95	96.697	
		1.058			.673
46	53.544		96	97.370	
		1.051			.666
47	54.595		97	98.036	
		1.044			.660
48	55.639		98	98.696	
		1.039			.655
49	56.678		99	99.351	
		1.034			.649
50	57.712		100	100.000	

TABLE 12.—Temperature Corrections to Readings of Saccharometers (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

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

TABLE 13.—Density[5] 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	1.044788	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	1.219185	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

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

TABLE 13.—Density of Solutions of Cane Sugar at 20° C—Continued

Per Cent Sugar	Tenths of Per Cent									
	0	1	2	3	4	5	6	7	8	9
50	1.229567	1.230117	1.230668	1.231219	1.231770	1.232322	1.232874	1.233426	1.233979	1.234532
51	1.235085	1.235639	1.236194	1.236748	1.237303	1.237859	1.238414	1.238970	1.239527	1.240084
52	1.240641	1.241198	1.241757	1.242315	1.242873	1.243433	1.243992	1.244552	1.245113	1.245673
53	1.246234	1.246795	1.247358	1.247920	1.248482	1.249046	1.249609	1.250172	1.250737	1.251301
54	1.251866	1.252431	1.252997	1.253563	1.254129	1.254697	1.255264	1.255831	1.256400	1.256967
55	1.257535	1.258104	1.258674	1.259244	1.259815	1.260385	1.260955	1.261527	1.262099	1.262671
56	1.263243	1.263816	1.264390	1.264963	1.265537	1.266112	1.266686	1.267261	1.267837	1.268413
57	1.268989	1.269565	1.270143	1.270720	1.271299	1.271877	1.272455	1.273035	1.273614	1.274194
58	1.274774	1.275354	1.275936	1.276517	1.277098	1.277680	1.278262	1.278844	1.279428	1.280011
59	1.280595	1.281179	1.281764	1.282349	1.282935	1.283521	1.284107	1.284694	1.285281	1.285869
60	1.286456	1.287044	1.287633	1.288222	1.288811	1.289401	1.289991	1.290581	1.291172	1.291763
61	1.292354	1.292946	1.293539	1.294131	1.294725	1.295318	1.295911	1.296506	1.297100	1.297695
62	1.298291	1.298886	1.299483	1.300079	1.300677	1.301274	1.301871	1.302470	1.303068	1.303668
63	1.304267	1.304867	1.305467	1.306068	1.306669	1.307271	1.307872	1.308475	1.309077	1.309680
64	1.310282	1.310885	1.311489	1.312093	1.312699	1.313304	1.313909	1.314515	1.315121	1.315728
65	1.316334	1.316941	1.317549	1.388157	1.318766	1.319374	1.319983	1.320593	1.321203	1.321814
66	1.322425	1.323036	1.323648	1.324259	1.324872	1.325484	1.326097	1.326711	1.327325	1.327940
67	1.328554	1.329170	1.329785	1.330401	1.331017	1.331633	1.332250	1.332868	1.333485	1.334103
68	1.334722	1.335342	1.335961	1.336581	1.337200	1.337821	1.338441	1.339063	1.339684	1.340306
69	1.340928	1.341551	1.342174	1.342798	1.343421	1.344046	1.344671	1.345296	1.345922	1.346547
70	1.347174	1.347801	1.348427	1.349055	1.349682	1.350311	1.350939	1.351568	1.352197	1.352827
71	1.353456	1.354087	1.354717	1.355349	1.355980	1.356612	1.357245	1.357877	1.358511	1.359144
72	1.359778	1.360413	1.361047	1.361682	1.362317	1.362953	1.363590	1.364226	1.364864	1.365501
73	1.366139	1.366777	1.367415	1.368054	1.368693	1.369333	1.369973	1.370613	1.371254	1.371894
74	1.372536	1.373178	1.373820	1.374463	1.375105	1.375749	1.376392	1.377036	1.377680	1.378326
75	1.378971	1.379617	1.380262	1.380909	1.381555	1.382203	1.382851	1.383499	1.384148	1.384796
76	1.385446	1.386096	1.386745	1.387396	1.388045	1.388696	1.389347	1.389999	1.390651	1.391303
77	1.391956	1.392610	1.393263	1.393917	1.394571	1.395226	1.395881	1.396536	1.397192	1.397848
78	1.398505	1.399162	1.399819	1.400477	1.401134	1.401793	1.402452	1.403111	1.403771	1.404430
79	1.405091	1.405752	1.406412	1.407074	1.407735	1.408398	1.409061	1.409723	1.410387	1.411051
80	1.411715	1.412380	1.413044	1.413709	1.414374	1.415040	1.415706	1.416373	1.417039	1.417707
81	1.418374	1.419043	1.419711	1.420380	1.421049	1.421719	1.422390	1.423059	1.423730	1.424400
82	1.425072	1.425744	1.426416	1.427089	1.427761	1.428435	1.429109	1.429782	1.430457	1.431131
83	1.431807	1.432483	1.433158	1.433835	1.434511	1.435188	1.435866	1.436543	1.437222	1.437900
84	1.438579	1.439259	1.439938	1.440619	1.441299	1.441980	1.442661	1.443342	1.444024	1.444705
85	1.445388	1.446071	1.446754	1.447438	1.448121	1.448806	1.449491	1.450175	1.450860	1.451545
86	1.452232	1.452919	1.453605	1.454292	1.454980	1.455668	1.456357	1.457045	1.457735	1.458424
87	1.459114	1.459805	1.460495	1.461186	1.461877	1.462568	1.463260	1.463953	1.464645	1.465338
88	1.466032	1.466726	1.467420	1.468115	1.468810	1.469504	1.470200	1.470896	1.471592	1.472289
89	1.472986	1.473684	1.474381	1.475080	1.475779	1.476477	1.477176	1.477876	1.478575	1.479275
90	1.479976	1.480677	1.481378	1.482080	1.482782	1.483484	1.484187	1.484890	1.485593	1.486297
91	1.487002	1.487707	1.488411	1.489117	1.489823	1.490528	1.491234	1.491941	1.492647	1.493355
92	1.494063	1.494771	1.495479	1.496188	1.496897	1.497606	1.498316	1.499026	1.499736	1.500447
93	1.501158	1.501870	1.502582	1.503293	1.504006	1.504719	1.505432	1.506146	1.506859	1.507574
94	1.508289	1.509004	1.509720	1.510435	1.511151	1.511868	1.512585	1.513302	1.514019	1.514737
95	1.515455	1.516174	1.516893	1.517612	1.518332	1.519051	1.519771	1.520492	1.521212	1.521934
96	1.522656	1.523378	1.524100	1.524823	1.525546	1.526269	1.526993	1.527717	1.528441	1.529166
97	1.529891	1.530616	1.531342	1.532068	1.532794	1.533521	1.534248	1.534976	1.535704	1.536432
98	1.537161	1.537889	1.538618	1.539347	1.540076	1.540806	1.541536	1.542267	1.542998	1.543730
99	1.544462	1.545194	1.545926	1.546659	1.547392	1.548127	1.548861	1.549595	1.550329	1.551064
100	1.551800									

TABLE 14.—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	$D\frac{20}{4}C$	Per Cent H_2SO_4	$D\frac{20}{4}C$	Per Cent H_2SO_4	$D\frac{20}{4}C$
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	1.78721	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

[6] Wiss. Abh. der Kaiserlichen Normal-Eichungs-Kommission, 5, p. 131; 1900.

TABLE 15.—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_2SO_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 16.—Degrees Baumé Corresponding to Specific Gravities at $\frac{60°}{60°}$ F ($\frac{15°56}{15°56}$ C) Greater than 1

[Calculated from the formula degrees Baumé $= 145 - \frac{145}{D\frac{60°}{60°}F}$, which defines the Baumé scale, in general use in the United States, for liquids heavier than water]

$D\frac{15°56}{15°56}C$	0	1	2	3	4	5	6	7	8	9	Diff.
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	4.768	4.903	5.038	5.174	5.308	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	25.755	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	34.583	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	39.803	78
1.37	39.161	39.238	39.315	39.392	39.469	39.546	39.622	39.609	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 16.—Degrees Baumé Corresponding to Specific Gravities at $\frac{60°}{60°}$ F ($\frac{15°56}{15°56}$ C) Greater than 1—Continued

D $\frac{15°56}{15°56}$ C	0	1	2	3	4	5	6	7	8	9	Diff.
1.41	42.163	42.236	42.309	42.381	42.454	42.527	42.599	42.671	42.743	42.815	73
1.42	42.887	42.959	43.031	43.103	43.174	43.246	43.317	43.388	43.459	43.530	72
1.43	43.601	43.672	43.743	43.814	43.884	43.955	44.025	44.095	44.166	44.236	71
1.44	44.306	44.376	44.445	44.515	44.585	44.654	44.724	44.793	44.862	44.931	70
1.45	45.000	45.069	45.138	45.207	45.275	45.344	45.412	45.481	45.549	45.617	69
1.46	45.685	45.753	45.821	45.889	45.956	46.024	46.091	46.159	46.226	46.293	67
1.47	46.361	46.428	46.495	46.562	46.628	46.695	46.762	46.828	46.894	46.961	67
1.48	47.027	47.093	47.159	47.225	47.291	47.357	47.423	47.488	47.554	47.619	66
1.49	47.685	47.750	47.815	47.880	47.945	48.010	48.075	48.140	48.204	48.269	65
1.50	48.333	48.398	48.462	48.526	48.591	48.655	48.719	48.782	48.846	48.910	64
1.51	48.974	49.037	49.101	49.164	49.227	49.290	49.354	49.417	49.480	49.543	63
1.52	49.605	49.668	49.731	49.793	49.856	49.918	49.980	50.043	50.105	50.167	62
1.53	50.229	50.291	50.353	50.414	50.476	50.538	50.599	50.660	50.722	50.783	61
1.54	50.844	50.905	50.966	51.027	51.088	51.149	51.210	51.270	51.331	51.391	61
1.55	51.452	51.512	51.572	51.632	51.692	51.752	51.812	51.872	51.932	51.992	60
1.56	52.051	52.111	52.170	52.230	52.289	52.348	52.407	52.467	52.526	52.585	59
1.57	52.643	52.702	52.761	52.820	52.878	52.937	52.995	53.053	53.112	53.170	59
1.58	53.228	53.286	53.344	53.402	53.460	53.517	53.575	53.633	53.690	53.748	58
1.59	53.805	53.862	53.920	53.977	54.034	54.091	54.148	54.205	54.262	54.318	57
1.60	54.375	54.432	54.488	54.545	54.601	54.657	54.714	54.770	54.826	54.882	56
1.61	54.938	54.994	55.050	55.106	55.161	55.217	55.272	55.328	55.383	55.439	56
1.62	55.494	55.549	55.604	55.659	55.714	55.769	55.824	55.879	55.934	55.988	55
1.63	56.043	56.098	56.152	56.206	56.261	56.315	56.369	56.423	56.478	56.531	54
1.64	56.585	56.639	56.693	56.747	56.801	56.854	56.908	56.961	57.015	57.068	54
1.65	57.121	57.175	57.228	57.281	57.334	57.387	57.440	57.493	57.545	57.598	53
1.66	57.651	57.703	57.756	57.808	57.861	57.913	57.965	58.017	58.070	58.122	52
1.67	58.174	58.226	58.278	58.329	58.381	58.433	58.485	58.536	58.588	58.639	52
1.68	58.690	58.742	58.793	58.844	58.896	58.947	58.998	59.049	59.100	59.150	51
1.69	59.201	59.252	59.303	59.353	59.404	59.454	59.505	59.555	59.605	59.656	50
1.70	59.706	59.756	59.806	59.856	59.906	59.956	60.006	60.056	60.105	60.155	50
1.71	60.205	60.254	60.304	60.353	60.403	60.452	60.501	60.550	60.600	60.649	49
1.72	60.698	60.747	60.796	60.844	60.893	60.942	60.991	61.039	61.088	61.136	49
1.73	61.185	61.234	61.282	61.330	61.378	61.427	61.475	61.523	61.571	61.619	48
1.74	61.667	61.715	61.762	61.810	61.858	61.906	61.953	62.001	62.048	62.096	48
1.75	62.143	62.190	62.237	62.285	62.332	62.379	62.426	62.473	62.520	62.567	47
1.76	62.614	62.660	62.707	62.754	62.801	62.847	62.894	62.940	62.987	63.033	46
1.77	63.079	63.125	63.172	63.218	63.264	63.310	63.356	63.402	63.448	63.494	46
1.78	63.539	68.585	63.631	63.676	63.722	63.768	63.813	63.858	63.904	63.949	46
1.79	63.994	64.040	64.085	64.130	64.175	64.220	64.265	64.310	64.355	64.400	45
1.80	64.445	64.489	64.534	64.579	64.623	64.668	64.712	64.757	64.801	64.845	45
1.81	64.890	64.934	64.978	65.022	65.066	65.110	65.154	65.198	65.242	65.286	44
1.82	65.330	65.374	65.417	65.461	65.504	65.548	65.591	65.635	65.678	65.722	43
1.83	65.765	65.808	65.852	65.895	65.938	65.981	66.024	66.067	66.110	66.153	43
1.84	66.196	66.238	66.281	66.324	66.367	66.409	66.452	66.494	66.537	66.579	42
1.85	66.622										

TABLE 17.—Specific Gravities at $\frac{60°}{60°}$ F ($\frac{15°56}{15°56}$ C) Corresponding to Degrees Baumé for Liquids Heavier than Water

[Calculated from the formula specific gravity $\frac{60°}{60°}\text{F} = \frac{145}{145 - \text{Deg. Baumé.}}$]

Degrees Baumé	Tenths of Degrees Baumé									
	0	1	2	3	4	5	6	7	8	9
0	1.0000	1.0007	1.0014	1.0021	1.0028	1.0035	1.0042	1.0049	1.0055	1.0062
1	1.0069	1.0076	1.0083	1.0090	1.0097	1.0105	1.0112	1.0119	1.0126	1.0133
2	1.0140	1.0147	1.0154	1.0161	1.0168	1.0175	1.0183	1.0190	1.0197	1.0204
3	1.0211	1.0218	1.0226	1.0233	1.0240	1.0247	1.0255	1.0262	1.0269	1.0276
4	1.0284	1.0291	1.0298	1.0306	1.0313	1.0320	1.0328	1.0335	1.0342	1.0350
5	1.0357	1.0365	1.0372	1.0379	1.0387	1.0394	1.0402	1.0409	1.0417	1.0424
6	1.0432	1.0439	1.0447	1.0454	1.0462	1.0469	1.0477	1.0484	1.0492	1.0500
7	1.0507	1.0515	1.0522	1.0530	1.0538	1.0545	1.0553	1.0561	1.0569	1.0576
8	1.0584	1.0592	1.0599	1.0607	1.0615	1.0623	1.0630	1.0638	1.0646	1.0654
9	1.0662	1.0670	1.0678	1.0685	1.0693	1.0701	1.0709	1.0717	1.0725	1.0733
10	1.0741	1.0749	1.0757	1.0765	1.0773	1.0781	1.0789	1.0797	1.0805	1.0813
11	1.0821	1.0829	1.0837	1.0845	1.0853	1.0861	1.0870	1.0878	1.0886	1.0894
12	1.0902	1.0910	1.0919	1.0927	1.0935	1.0944	1.0952	1.0960	1.0968	1.0977
13	1.0985	1.0993	1.1002	1.1010	1.1018	1.1027	1.1035	1.1043	1.1052	1.1060
14	1.1069	1.1077	1.1086	1.1094	1.1103	1.1111	1.1120	1.1128	1.1137	1.1145
15	1.1154	1.1162	1.1171	1.1180	1.1188	1.1197	1.1206	1.1214	1.1223	1.1232
16	1.1240	1.1249	1.1258	1.1267	1.1275	1.1284	1.1293	1.1302	1.1310	1.1319
17	1.1328	1.1337	1.1346	1.1355	1.1364	1.1373	1.1381	1.1390	1.1399	1.1408
18	1.1417	1.1426	1.1435	1.1444	1.1453	1.1462	1.1472	1.1481	1.1490	1.1499
19	1.1508	1.1517	1.1526	1.1535	1.1545	1.1554	1.1563	1.1572	1.1581	1.1591
20	1.1600	1.1609	1.1619	1.1628	1.1637	1.1647	1.1656	1.1665	1.1675	1.1684
21	1.1694	1.1703	1.1712	1.1722	1.1731	1.1741	1.1750	1.1760	1.1769	1.1779
22	1.1789	1.1798	1.1808	1.1817	1.1827	1.1837	1.1846	1.1856	1.1866	1.1876
23	1.1885	1.1895	1.1905	1.1915	1.1924	1.1934	1.1944	1.1954	1.1964	1.1974
24	1.1983	1.1993	1.2003	1.2013	1.2023	1.2033	1.2043	1.2053	1.2063	1.2073
25	1.2083	1.2093	1.2104	1.2114	1.2124	1.2134	1.2144	1.2154	1.2164	1.2175
26	1.2185	1.2195	1.2205	1.2216	1.2226	1.2236	1.2247	1.2257	1.2267	1.2278
27	1.2288	1.2299	1.2309	1.2319	1.2330	1.2340	1.2351	1.2361	1.2372	1.2383
28	1.2393	1.2404	1.2414	1.2425	1.2436	1.2447	1.2457	1.2468	1.2478	1.2489
29	1.2500	1.2511	1.2522	1.2532	1.2543	1.2554	1.2565	1.2576	1.2587	1.2598
30	1.2609	1.2620	1.2631	1.2642	1.2653	1.2664	1.2675	1.2686	1.2697	1.2708
31	1.2719	1.2730	1.2742	1.2753	1.2764	1.2775	1.2787	1.2798	1.2809	1.2821
32	1.2832	1.2843	1.2855	1.2866	1.2877	1.2889	1.2900	1.2912	1.2923	1.2935
33	1.2946	1.2958	1.2970	1.2981	1.2993	1.3004	1.3016	1.3028	1.3040	1.3051
34	1.3063	1.3075	1.3087	1.3098	1.3110	1.3122	1.3134	1.3146	1.3158	1.3170
35	1.3182	1.3194	1.3206	1.3218	1.3230	1.3242	1.3254	1.3266	1.3278	1.3291
36	1.3303	1.3315	1.3327	1.3339	1.3352	1.3364	1.3376	1.3389	1.3401	1.3414
37	1.3426	1.3438	1.3451	1.3463	1.3476	1.3488	1.3501	1.3514	1.3526	1.3539
38	1.3551	1.3564	1.3577	1.3590	1.3602	1.3615	1.3628	1.3641	1.3653	1.3666
39	1.3679	1.3692	1.3705	1.3718	1.3731	1.3744	1.3757	1.3770	1.3783	1.3796
40	1.3810	1.3823	1.3836	1.3849	1.3862	1.3876	1.3889	1.3902	1.3916	1.3929
41	1.3942	1.3956	1.3969	1.3983	1.3996	1.4010	1.4023	1.4037	1.4050	1.4064
42	1.4078	1.4091	1.4105	1.4119	1.4133	1.4146	1.4160	1.4174	1.4188	1.4202
43	1.4216	1.4230	1.4244	1.4258	1.4272	1.4286	1.4300	1.4314	1.4328	1.4342
44	1.4356	1.4371	1.4385	1.4399	1.4414	1.4428	1.4442	1.4457	1.4471	1.4486
45	1.4500	1.4515	1.4529	1.4544	1.4558	1.4573	1.4588	1.4602	1.4617	1.4632
46	1.4646	1.4661	1.4676	1.4691	1.4706	1.4721	1.4736	1.4751	1.4766	1.4781
47	1.4796	1.4811	1.4826	1.4841	1.4857	1.4872	1.4887	1.4902	1.4918	1.4933
48	1.4948	1.4964	1.4979	1.4995	1.5010	1.5026	1.5041	1.5057	1.5073	1.5088
49	1.5104	1.5120	1.5136	1.5152	1.5167	1.5183	1.5199	1.5215	1.5231	1.5247
50	1.5263	1.5279	1.5295	1.5312	1.5328	1.5344	1.5360	1.5376	1.5393	1.5409
51	1.5426	1.5442	1.5458	1.5475	1.5491	1.5508	1.5525	1.5541	1.5558	1.5575
52	1.5591	1.5608	1.5625	1.5642	1.5659	1.5676	1.5693	1.5710	1.5727	1.5744
53	1.5761	1.5778	1.5795	1.5812	1.5830	1.5847	1.5865	1.5882	1.5899	1.5917
54	1.5934	1.5952	1.5969	1.5987	1.6004	1.6022	1.6040	1.6058	1.6076	1.6093
55	1.6111	1.6129	1.6147	1.6165	1.6183	1.6201	1.6219	1.6237	1.6256	1.6274
56	1.6292	1.6310	1.6329	1.6347	1.6366	1.6384	1.6403	1.6421	1.6440	1.6459
57	1.6477	1.6496	1.6515	1.6534	1.6553	1.6572	1.6591	1.6610	1.6629	1.6648
58	1.6667	1.6686	1.6705	1.6724	1.6744	1.6763	1.6782	1.6802	1.6821	1.6841
59	1.6860	1.6880	1.6900	1.6919	1.6939	1.6959	1.6979	1.6999	1.7019	1.7039
60	1.7059	1.7079	1.7099	1.7119	1.7139	1.7160	1.7180	1.7200	1.7221	1.7241
61	1.7262	1.7282	1.7303	1.7324	1.7344	1.7365	1.7386	1.7407	1.7428	1.7449
62	1.7470	1.7491	1.7512	1.7533	1.7554	1.7576	1.7597	1.7618	1.7640	1.7661
63	1.7683	1.7705	1.7726	1.7748	1.7770	1.7792	1.7814	1.7836	1.7858	1.7879
64	1.7901	1.7924	1.7946	1.7968	1.7990	1.8012	1.8035	1.8057	1.8080	1.8102
65	1.8125	1.8148	1.8170	1.8193	1.8216	1.8239	1.8262	1.8285	1.8308	1.8331
66	1.8354	1.8378	1.8401	1.8424	1.8448	1.8471	1.8495	1.8519	1.8542	1.8566
67	1.8590	1.8614	1.8638	1.8662	1.8686	1.8710	1.8734	1.8758	1.8782	1.8807
68	1.8831	1.8856	1.8880	1.8905	1.8930	1.8954	1.8979	1.9004	1.9029	1.9054
69	1.9079	1.9104	1.9129	1.9155	1.9180	1.9205	1.9231	1.9256	1.9282	1.9308
70	1.9333									

TABLE 18.—Degrees Baumé Corresponding to Specific Gravities at $\frac{60°}{60°}$ F ($\frac{15°56}{15°56}$ C) Less than 1

[Calculated from the formula degrees Baumé= $\frac{140}{D\frac{60°}{60°}F}$ −130 which defines the Baumé scale, in general use in the United States, for liquids lighter than water]

D $\frac{15°56}{15°56}$ C	0	1	2	3	4	5	6	7	8	9	Diff.
0.60	103.333	102.945	102.558	102.172	101.788	101.405	101.023	100.642	100.263	99.885	382
.61	99.508	99.133	98.758	98.385	98.013	97.642	97.273	96.904	96.537	96.171	370
.62	95.806	95.443	95.080	94.719	94.359	94.000	93.642	93.285	92.930	92.576	360
.63	92.222	91.870	91.519	91.169	90.820	90.472	90.126	89.780	89.436	89.092	348
.64	88.750	88.409	88.068	87.729	87.391	87.054	86.718	86.383	86.049	85.716	337
.65	85.385	85.054	84.724	84.395	84.067	83.741	83.415	83.090	82.766	82.443	327
.66	82.121	81.800	81.480	81.161	80.843	80.526	80.210	79.895	79.581	79.268	317
.67	78.955	78.644	78.333	78.024	77.715	77.407	77.101	76.795	76.490	76.186	308
.68	75.882	75.580	75.279	74.978	74.678	74.380	74.082	73.785	73.488	73.193	298
.69	72.899	72.605	72.312	72.020	71.729	71.439	71.149	70.861	70.573	70.286	290
.70	70.000	69.715	69.430	69.146	68.864	68.582	68.300	68.020	67.740	67.461	282
.71	67.183	66.906	66.629	66.354	66.078	65.804	65.531	65.258	64.986	64.715	274
.72	64.444	64.175	63.906	63.638	63.370	63.103	62.837	62.572	62.308	62.044	266
.73	61.781	61.518	61.257	60.996	60.736	60.476	60.217	59.959	59.702	59.445	260
.74	59.189	58.934	58.679	58.425	58.172	57.919	57.668	57.416	57.166	56.916	252
.75	56.667	56.418	56.170	55.923	55.676	55.430	55.185	54.941	54.697	54.453	246
.76	54.210	53.968	53.727	53.486	53.246	53.007	52.768	52.529	52.292	52.055	239
.77	51.818	51.582	51.347	51.113	50.879	50.645	50.412	50.180	49.949	49.718	234
.78	49.487	49.257	49.028	48.799	48.571	48.344	48.117	47.891	47.665	47.440	227
.79	47.215	46.991	46.768	46.545	46.322	46.101	45.879	45.659	45.439	45.219	222
.80	45.000	44.781	44.564	44.346	44.129	43.913	43.697	43.482	43.267	43.053	216
.81	42.840	42.626	42.414	42.202	41.990	41.779	41.569	41.359	41.149	40.940	210
.82	40.732	40.524	40.316	40.109	39.903	39.697	39.492	39.287	39.082	38.878	206
.83	38.675	38.472	38.269	38.067	37.866	37.665	37.464	37.264	37.064	36.866	201
.84	36.667	36.469	36.271	36.074	35.877	35.680	35.485	35.289	35.094	34.900	196
.85	34.706	34.512	34.319	34.127	33.934	33.743	33.551	33.361	33.170	32.980	192
.86	32.791	32.602	32.413	32.225	32.037	31.850	31.663	31.476	31.290	31.105	187
.87	30.920	30.735	30.550	30.366	30.183	30.000	29.817	29.635	29.453	29.272	183
.88	29.091	28.910	28.730	28.550	28.371	28.192	28.014	27.835	27.658	27.480	179
.89	27.303	27.127	26.951	26.775	26.600	26.425	26.250	26.076	25.902	25.729	175
.90	25.556	25.383	25.211	25.039	24.867	24.696	24.525	24.355	24.185	24.015	171
.91	23.846	23.677	23.509	23.341	23.173	23.005	22.838	22.672	22.506	22.339	168
.92	22.174	22.009	21.844	21.679	21.515	21.351	21.188	21.025	20.862	20.700	164
.93	20.538	20.376	20.215	20.054	19.893	19.733	19.573	19.413	19.254	19.095	160
.94	18.936	18.778	18.620	18.462	18.305	18.148	17.991	17.835	17.679	17.524	157
.95	17.368	17.214	17.059	16.905	16.751	16.597	16.444	16.290	16.138	15.985	154
.96	15.833	15.682	15.530	15.379	15.228	15.078	14.928	14.778	14.628	14.479	150
.97	14.330	14.181	14.033	13.885	13.737	13.590	13.443	13.297	13.149	13.003	147
.98	12.857	12.712	12.566	12.421	12.276	12.132	11.988	11.844	11.700	11.557	144
.99	11.414	11.271	11.129	10.987	10.845	10.704	10.562	10.421	10.281	10.140	142
1.00	10.000										

TABLE 19.—Specific Gravities at $\frac{60°}{60°}$ F $\left(\frac{15°56}{15°56}\text{ C}\right)$ Corresponding to Degrees Baumé for Liquids Lighter than Water

[Calculated from the formula, Specific Gravity $\frac{60°}{60°}\text{F} = \frac{140}{130 + \text{Deg. Bé}}$]

Degrees Baumé	Tenths of Degrees Baumé									
	0	1	2	3	4	5	6	7	8	9
10	1.0000	0.9993	0.9986	0.9979	0.9972	0.9964	0.9957	0.9950	0.9943	0.9936
11	.9929	.9922	.9915	.9908	.9901	.9894	.9887	.9880	.9873	.9866
12	.9859	.9852	.9845	.9838	.9831	.9825	.9818	.9811	.9804	.9797
13	.9790	.9783	.9777	.9770	.9763	.9756	.9749	.9742	.9736	.9729
14	.9722	.9715	.9709	.9702	.9695	.9689	.9682	.9675	.9669	.9662
15	.9655	.9649	.9642	.9635	.9629	.9622	.9615	.9609	.9602	.9596
16	.9589	.9582	.9576	.9569	.9563	.9556	.9550	.9543	.9537	.9530
17	.9524	.9518	.9511	.9504	.9498	.9492	.9485	.9479	.9472	.9466
18	.9459	.9453	.9447	.9440	.9434	.9428	.9421	.9415	.9409	.9402
19	.9396	.9390	.9383	.9377	.9371	.9365	.9358	.9352	.9346	.9340
20	.9333	.9327	.9321	.9315	.9308	.9302	.9296	.9290	.9284	.9278
21	.9272	.9265	.9259	.9253	.9247	.9241	.9235	.9229	.9223	.9217
22	.9211	.9204	.9198	.9192	.9186	.9180	.9174	.9168	.9162	.9156
23	.9150	.9144	.9138	.9132	.9126	.9121	.9115	.9109	.9103	.9097
24	.9091	.9085	.9079	.9073	.9067	.9061	.9056	.9050	.9044	.9038
25	.9032	.9026	.9021	.9015	.9009	.9003	.8997	.8992	.8986	.8980
26	.8974	.8969	.8963	.8957	.8951	.8946	.8940	.8934	.8929	.8923
27	.8917	.8912	.8906	.8900	.8895	.8889	.8883	.8878	.8872	.8866
28	.8861	.8855	.8850	.8844	.8838	.8833	.8827	.8822	.8816	.8811
29	.8805	.8799	.8794	.8788	.8783	.8778	.8772	.8766	.8761	.8755
30	.8750	.8745	.8739	.8734	.8728	.8723	.8717	.8712	.8707	.8701
31	.8696	.8690	.8685	.8680	.8674	.8669	.8663	.8658	.8653	.8647
32	.8642	.8637	.8631	.8626	.8621	.8616	.8610	.8605	.8600	.8594
33	.8589	.8584	.8579	.8573	.8568	.8563	.8558	.8552	.8547	.8542
34	.8537	.8531	.8526	.8521	.8516	.8511	.8506	.8500	.8495	.8490
35	.8485	.8480	.8475	.8469	.8464	.8459	.8454	.8449	.8444	.8439
36	.8434	.8429	.8424	.8419	.8413	.8408	.8403	.8398	.8393	.8388
37	.8383	.8378	.8373	.8368	.8363	.8358	.8353	.8348	.8343	.8338
38	.8333	.8328	.8323	.8318	.8314	.8309	.8304	.8299	.8294	.8289
39	.8284	.8279	.8274	.8269	.8264	.8260	.8255	.8250	.8245	.8240
40	.8235	.8230	.8226	.8221	.8216	.8211	.8206	.8202	.8197	.8192
41	.8187	.8182	.8178	.8173	.8168	.8163	.8159	.8154	.8149	.8144
42	.8140	.8135	.8130	.8125	.8121	.8116	.8111	.8107	.8102	.8097
43	.8092	.8088	.8083	.8079	.8074	.8069	.8065	.8060	.8055	.8051
44	.8046	.8041	.8037	.8032	.8028	.8023	.8018	.8014	.8009	.8005
45	.8000	.7995	.7991	.7986	.7982	.7977	.7973	.7968	.7964	.7959
46	.7955	.7950	.7946	.7941	.7937	.7932	.7928	.7923	.7919	.7914
47	.7910	.7905	.7901	.7896	.7892	.7887	.7883	.7878	.7874	.7870
48	.7865	.7861	.7856	.7852	.7848	.7843	.7839	.7834	.7830	.7826
49	.7821	.7817	.7812	.7808	.7804	.7799	.7795	.7791	.7786	.7782
50	.7778	.7773	.7769	.7765	.7761	.7756	.7752	.7748	.7743	.7739
51	.7735	.7731	.7726	.7722	.7718	.7714	.7709	.7705	.7701	.7697
52	.7692	.7688	.7684	.7680	.7675	.7671	.7667	.7663	.7659	.7654
53	.7650	.7646	.7642	.7638	.7634	.7630	.7625	.7621	.7617	.7613
54	.7609	.7605	.7600	.7596	.7592	.7588	.7584	.7580	.7576	.7572
55	.7568	.7564	.7559	.7555	.7551	.7547	.7543	.7539	.7535	.7531

TABLE 19.—Specific Gravities at $\frac{60°}{60°}$ F $\left(\frac{15.56}{15.56}\text{ C}\right)$ Corresponding to Degrees Baumé for Liquids Lighter than Water—Continued

Degrees Baumé	Tenths of Degrees Baumé									
	0	1	2	3	4	5	6	7	8	9
55	0.7568	0.7564	0.7559	0.7555	0.7551	0.7547	0.7543	0.7539	0.7535	0.7531
56	.7527	.7523	.7519	.7515	.7511	.7507	.7503	.7499	.7495	.7491
57	.7487	.7483	.7479	.7475	.7471	.7467	.7463	.7459	.7455	.7451
58	.7447	.7443	.7439	.7435	.7431	.7427	.7423	.7419	.7415	.7411
59	.7407	.7403	.7400	.7396	.7392	.7388	.7384	.7380	.7376	.7372
60	.7368	.7365	.7361	.7357	.7353	.7349	.7345	.7341	.7338	.7334
61	.7330	.7326	.7322	.7318	.7315	.7311	.7307	.7303	.7299	.7296
62	.7292	.7288	.7284	.7280	.7277	.7273	.7269	.7265	.7261	.7258
63	.7254	.7250	.7246	.7243	.7239	.7235	.7231	.7228	.7224	.7220
64	.7216	.7213	.7209	.7205	.7202	.7198	.7194	.7191	.7187	.7183
65	.7179	.7176	.7172	.7168	.7165	.7161	.7157	.7154	.7150	.7147
66	.7143	.7139	.7136	.7132	.7128	.7125	.7121	.7117	.7114	.7110
67	.7107	.7103	.7099	.7096	.7092	.7089	.7085	.7081	.7078	.7074
68	.7071	.7067	.7064	.7060	.7056	.7053	.7049	.7046	.7042	.7039
69	.7035	.7032	.7028	.7025	.7021	.7018	.7014	.7011	.7007	.7004
70	.7000	.6997	.6993	.6990	.6986	.6983	.6979	.6976	.6972	.6969
71	.6965	.6962	.6958	.6955	.6951	.6948	.6944	.6941	.6938	.6934
72	.6931	.6927	.6924	.6920	.6917	.6914	.6910	.6907	.6903	.6900
73	.6897	.6893	.6890	.6886	.6883	.6880	.6876	.6873	.6869	.6866
74	.6863	.6859	.6856	.6853	.6849	.6846	.6843	.6839	.6836	.6833
75	.6829	.6826	.6823	.6819	.6816	.6813	.6809	.6806	.6803	.6799
76	.6796	.6793	.6790	.6786	.6783	.6780	.6776	.6773	.6770	.6767
77	.6763	.6760	.6757	.6753	.6750	.6747	.6744	.6741	.6737	.6734
78	.6731	.6728	.6724	.6721	.6718	.6715	.6711	.6708	.6705	.6702
79	.6699	.6695	.6692	.6689	.6686	.6683	.6679	.6676	.6673	.6670
80	.6667	.6663	.6660	.6657	.6654	.6651	.6648	.6645	.6641	.6638
81	.6635	.6632	.6629	.6626	.6623	.6619	.6616	.6613	.6610	.6607
82	.6604	.6601	.6598	.6594	.6591	.6588	.6585	.6582	.6579	.6576
83	.6573	.6570	.6567	.6564	.6560	.6557	.6554	.6551	.6548	.6545
84	.6542	.6539	.6536	.6533	.6530	.6527	.6524	.6521	.6518	.6515
85	.6512	.6509	.6506	.6503	.6500	.6497	.6494	.6490	.6487	.6484
86	.6482	.6479	.6476	.6473	.6470	.6467	.6464	.6461	.6458	.6455
87	.6452	.6449	.6446	.6443	.6440	.6437	.6434	.6431	.6428	.6425
88	.6422	.6419	.6416	.6413	.6410	.6407	.6404	.6401	.6399	.6396
89	.6393	.6390	.6387	.6384	.6381	.6378	.6375	.6372	.6369	.6367
90	.6364	.6361	.6358	.6355	.6352	.6349	.6346	.6343	.6341	.6338
91	.6335	.6332	.6329	.6326	.6323	.6321	.6318	.6315	.6312	.6309
92	.6306	.6303	.6301	.6298	.6295	.6292	.6289	.6286	.6284	.6281
93	.6278	.6275	.6272	.6270	.6267	.6264	.6261	.6258	.6256	.6253
94	.6250	.6247	.6244	.6242	.6239	.6236	.6233	.6231	.6228	.6225
95	.6222	.6219	.6217	.6214	.6211	.6208	.6206	.6203	.6200	.6197
96	.6195	.6192	.6189	.6186	.6184	.6181	.6178	.6176	.6173	.6170
97	.6167	.6165	.6162	.6159	.6157	.6154	.6151	.6148	.6146	.6143
98	.6140	.6138	.6135	.6132	.6130	.6127	.6124	.6122	.6119	.6116
99	.6114	.6111	.6108	.6106	.6103	.6100	.6098	.6095	.6092	.6090
100	.6087									

TABLE 20.—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.

Suppose a hydrometer indicates specific gravity at $\frac{20°}{4°}$C, and it is required to know the correction in order that it shall indicate specific gravity at $\frac{15°56}{15°56}$ C, then,

$$D\frac{15°56}{15°56} = D\frac{20°}{4°} + \Delta D\frac{20°}{4°}$$

That is, if the hydrometer indicates correctly a specific gravity of 1.5760 at $\frac{20°}{4°}$, then at $\frac{15°56}{15°56}$ the reading of the instrument will be too low by $1.5760 \times 0.001062 = 0.0017$. A correction of 0.0017 must therefore be added to the indication of the hydrometer.

Or, if a maker using standards indicating $D\frac{15°56}{15°56}$C wishes to graduate a hydrometer to indicate density at 20° C referred to water at 4° C $\left(D\frac{20}{4}\right)$, the readings of the standard must be corrected by use of the factor +0.001062.

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	Required Basis of Density $\frac{t}{t'}$									
	$D\frac{25°}{4°}$C	$D\frac{20}{4}$	$D\frac{17.5}{4}$	$D\frac{15.56}{4}$	$D\frac{15}{4}$	$D\frac{15}{15}$	$D\frac{15.56}{15.56}$	$D\frac{17.5}{17.5}$	$D\frac{20}{20}$	$D\frac{25}{25}$
$\frac{T}{T'}$	Δ (In Units of the Sixth Decimal Place)									
$D\frac{25°}{4°}$C	0	+ 115	+ 172	+ 217	+ 230	+1104	+1177	+1459	+1884	+2931
$D\frac{20}{4}$	− 115	0	+ 58	+ 102	+ 115	+ 989	+1062	+1345	+1769	+2816
$D\frac{17.5}{4}$	− 172	− 58	0	+ 45	+ 58	+ 932	+1005	+1287	+1711	+2758
$D\frac{15.56}{4}$	− 217	− 102	− 45	0	+ 13	+ 887	+ 960	+1242	+1667	+2713
$D\frac{15}{4}$	− 230	− 115	− 58	− 13	0	+ 874	+ 947	+1229	+1654	+2700
$D\frac{15}{15}$	−1103	− 988	− 931	− 886	− 873	0	+ 73	+ 354	+ 779	+1826
$D\frac{15.56}{15.56}$	−1176	−1061	−1004	− 960	− 947	− 73	0	+ 281	+ 706	+1752
$D\frac{17.5}{17.5}$	−1457	−1343	−1285	−1240	−1227	− 354	− 281	0	+ 424	+1471
$D\frac{20}{20}$	−1881	−1766	−1708	−1664	−1651	− 778	− 705	− 423	0	+1046
$D\frac{25}{25}$	−2923	−2808	−2751	−2707	−2694	−1821	−1748	−1468	−1044	0

TABLE 21.—Weight (in grams), at Various Pressures and Temperatures, of 1 Liter of Dry Air Containing 0.04 Per Cent of CO_2

[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 22.—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)]

Observed Pressure in Millimeters.	Temperature in Degrees Centigrade			
	15	20	25	30
640	0.904	0.886	0.869	0.852
650	0.918	0.900	0.883	0.866
660	0.932	0.914	0.897	0.879
670	0.946	0.928	0.911	0.893
680	0.960	0.942	0.924	0.906
690	0.975	0.956	0.938	0.920
700	0.989	0.970	0.952	0.933
705	0.996	0.977	0.958	0.940
710	1.003	0.984	0.965	0.947
715	1.010	0.991	0.972	0.953
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 23.—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 22, 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]

Temp. in Degrees C	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 24.—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 0.000023 to 0.000028]

Temp. in Degrees C	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 25 to 37 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..... 249.198g
From Table 25, correction..... 0.813

Actual capacity at 20°..... 250.011 cc

TABLE 25.—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	0.518	0.521	0.524	0.528	0.530	0.534	0.537	0.540	0.543	0.546
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 26.—Indicated Capacity 200 cc

Temp. in Deg. C	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	0.414	0.417	0.419	0.422	0.424	0.427	0.430	0.432	0.435	0.437
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 27.—Indicated Capacity 150 cc

15	0.311	0.313	0.314	0.316	0.318	0.320	0.322	0.324	0.326	0.328
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 28.—Indicated Capacity 100 cc

15	0.207	0.208	0.210	0.211	0.212	0.213	0.215	0.216	0.217	0.219
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 29.—Indicated Capacity 90 cc

Temp. in Deg. C	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	0.186	0.188	0.189	0.190	0.191	0.192	0.193	0.194	0.196	0.197
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 30.—Indicated Capacity 80 cc

15	0.166	0.167	0.168	0.169	0.170	0.171	0.172	0.173	0.174	0.175
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	.308	.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 31.—Indicated Capacity 70 cc

15	0.145	0.146	0.147	0.148	0.148	0.149	0.150	0.151	0.152	0.153
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 32.—Indicated Capacity 60 cc

Temp. in Deg. C	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	0.124	0.125	0.126	0.127	0.127	0.128	0.129	0.130	0.130	0.131
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 33.—Indicated Capacity 50 cc

15	0.104	0.104	0.105	0.106	0.106	0.107	0.107	0.108	0.109	0.109
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	.135	.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 34.—Indicated Capacity 45 cc

15	0.093	0.094	0.094	0.095	0.095	0.096	0.097	0.097	0.098	0.098
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 35.—Indicated Capacity 40 cc

Temp. in Deg. C	Tenths of Degrees									
	0	1	2	3	4	5	6	7	8	9
15	0.083	0.083	0.084	0.084	0.085	0.085	0.086	0.086	0.087	0.087
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 36.—Indicated Capacity 35 cc

15	0.073	0.073	0.073	0.074	0.074	0.075	0.075	0.076	0.076	0.076
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 37.—Indicated Capacity 30 cc

15	0.062	0.063	0.063	0.063	0.064	0.064	0.064	0.065	0.065	0.066
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 38.—Density (in grams per milliliter) of Water at Temperatures from 0° to 102° C [7]

Temp., Deg. C	Density	Temp., Deg. C	Density	Temp., Deg. C	Density
0	0.99987	35	0.99406	70	0.97781
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, Wiss. Abh. der Physikalisch-Technischen Reichsanstalt, 4, No. 1; 1904.