

ENGINEERING INFORMATION - DENSITY AND VISCOSITY OF PURE WATER

Table 6: Density and Viscosity of Pure Water

<i>t</i>	<i>t</i>	μ	Δ	ρ	Δ	ν	Δ	μ	Δ	ρ	Δ	ν	Δ
°F.	°C.	$\frac{\text{Dyne Sec.}}{\text{Sq. Cm.}}$		$\frac{\text{Grams}}{\text{Cu. Cm.}}$		$\frac{\text{Sq. Cm.}}{\text{Sec.}}$		$\frac{\text{Lb. Sec.}}{\text{Sq. Ft.}}$		$\frac{\text{Slugs}}{\text{Cu. Ft.}}$		$\frac{\text{Sq. Ft.}}{\text{Sec.}}$	
1	2	3		4		5		6		7		8	
32.0	0.0000	0.017938		0.9998679		0.017940		0.000037464		1.940079		0.000019311	
32.5	0.2778	17767	171	8860	181	17769	171	37107	357	0114	35	19126	185
33.0	0.5556	17595	172	9027	167	17597	172	36748	359	0147	33	18941	185
33.5	0.8333	17423	172	9181	154	17424	173	36389	359	0177	30	18755	186
34.0	1.1111	17255	168	9320	139	17256	168	36038	351	0204	27	18574	181
34.5	1.3889	17094	161	9447	127	17095	161	35702	336	0228	24	18401	173
35.0	1.6667	0.016933	161	0.9999560	113	0.016934	161	0.000035365	337	1.940250	22	0.000018227	173
35.5	1.9444	16772	161	9660	100	16773	161	35029	336	0270	20	18054	173
36.0	2.2222	16618	154	9747	87	16618	155	34708	321	0287	17	17888	166
36.5	2.5000	16466	152	9821	74	16466	152	34390	318	0301	14	17724	164
37.0	2.7778	16314	152	9882	61	16314	152	34073	317	0313	12	17560	164
37.5	3.0556	16164	150	9930	48	16164	152	33759	314	0322	9	17399	161
38.0	3.3333	0.016021	143	0.9999966	36	0.016021	143	0.000033461	298	1.940329	7	0.000017245	154
38.5	3.6111	0.015877	144	9989	23	15877	144	33160	301	0334	5	17090	155
39.0	3.8889	15733	144	1.0000000	11	15733	144	32859	301	0336	2	16935	155
39.5	4.1667	15595	138	0.9999997	3	15595	138	32571	288	0335	1	16786	149
40.0	4.4444	15459	136	9983	14	15459	136	32287	284	0332	3	16640	146
40.5	4.7222	15323	136	9957	26	15323	136	32003	284	0327	5	16494	146
41.0	5.0000	0.015188	135	0.9999919	38	0.015188	135	0.000031721	282	1.940320	7	0.000016348	146
41.5	5.2778	15060	128	9868	51	15060	128	31454	267	0310	10	16211	137
42.0	5.5556	14931	129	9806	62	14931	129	31184	260	0298	12	16072	139
42.5	5.8333	14803	128	9731	75	14803	128	30917	267	0283	15	15934	138
43.0	6.1111	0.014677	126	0.9999645	86	0.014678	125	0.000030654	263	1.940267	16	0.000015799	134
43.5	6.3889	14556	122	9548	97	14557	121	30401	253	0248	19	15669	130
44.0	6.6667	14434	122	9440	108	14435	122	30146	255	0227	21	15537	132
44.5	6.9444	14312	122	9320	120	14313	122	0.000029891	255	0204	23	15406	131
45.0	7.2222	14196	116	9189	131	14197	116	29649	242	0178	26	15282	124
45.5	7.5000	14080	116	9046	143	14081	116	29407	242	0151	27	15157	125
46.0	7.7778	0.013964	116	0.9998892	154	0.013966	115	0.000029165	242	1.940121	30	0.000015032	125
46.5	8.0556	13850	114	8728	164	13852	114	28926	239	0089	32	14910	122
47.0	8.3333	13740	110	8552	176	13742	110	28697	229	0055	34	14792	118
47.5	8.6111	13630	110	8366	186	13632	110	28467	230	0019	36	14674	118
48.0	8.8889	13520	110	8170	196	13522	110	28237	230	1.939981	38	14555	119
48.5	9.1667	13413	107	7962	208	13416	106	28014	223	9940	41	14441	114
49.0	9.4444	0.013307	106	0.9997744	218	0.013310	106	0.000027792	222	1.939898	42	0.000014327	114
49.5	9.7222	13202	105	7515	229	13205	105	27573	219	9853	45	14214	113
			105		238		104		219		46		113

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Table 6: Density and Viscosity of Pure Water (continued)

<i>t</i>	<i>t</i>	μ	Δ	ρ	Δ	ν	Δ	μ	Δ	ρ	Δ	ν	Δ
° F.	° C.	Dyne Sec. Sq. Cm.		Grams Cu. Cm.		Sq. Cm. Sec.		Lb. Sec. Sq. Ft.		Slugs Cu. Ft.		Sq. Ft. Sec.	
1	2	3		4		5		6		7		8	
50.0	10.0000	13097	101	7277	249	13101	101	27354	211	9807	48	14101	108
50.5	10.2778	12996	101	7028	261	13000	101	27143	211	9759	51	13993	108
51.0	10.5556	12895	100	0.9996767	272	12899	100	26932	209	9708	52	13885	108
51.5	10.8333	12795	98	6495	282	12799	97	26723	205	9656	55	13777	105
52.0	11.1111	0.012697	96	0.9996213	290	0.012702	96	0.000026518	200	1.939601	56	0.000013672	103
52.5	11.3889	12601	96	0.9995923	302	12606	96	26318	201	9545	59	13569	103
53.0	11.6667	12505	96	5621	311	12510	95	26117	209	9486	60	13466	103
53.5	11.9444	12409	92	5310	320	12415	92	25917	192	9426	62	13363	98
54.0	12.2222	12317	92	0.9994990	330	12323	91	25725	192	9364	64	13265	99
54.5	12.5000	12225	91	4660	341	12232	91	25533	191	9300	67	13166	98
55.0	12.7778	0.012134	90	0.9994319	350	0.012141	90	0.000025342	187	1.939233	68	0.000013068	96
55.5	13.0556	12044	87	0.9993969	358	12051	86	25155	182	9165	69	12972	93
56.0	13.3333	11957	87	3611	368	11965	87	24973	182	9096	71	12879	94
56.5	13.6111	11870	87	3243	378	11878	86	24791	182	9025	74	12785	93
57.0	13.8889	11783	85	2865	386	11791	84	24609	177	1.938951	75	12692	91
57.5	14.1667	11698	84	2479	396	11707	84	24432	176	8876	77	12601	90
58.0	14.4444	0.011614	83	0.9992083	405	0.011623	82	0.000024256	173	1.938799	78	0.000012511	89
58.5	14.7222	11531	84	0.9991678	413	11541	84	24083	175	8721	80	12422	90
59.0	15.0000	11447	81	1265	423	11457	81	23908	170	8641	82	12332	87
59.5	15.2778	11366	81	0.9990842	432	11376	80	23738	169	8559	84	12245	86
60.0	15.5556	11285	81	0410	441	11296	81	23569	169	8475	86	12159	87
60.5	15.8333	11204	79	0.9989969	449	11215	78	23400	165	8389	87	12072	85
61.0	16.1111	0.011125	78	0.9989520	459	0.011137	78	0.000023235	163	1.938302	89	0.000011987	83
61.5	16.3889	11047	78	9061	467	11059	77	23072	163	8213	90	11904	84
62.0	16.6667	10969	78	0.9988594	476	10982	78	22909	163	8123	93	11820	83
62.5	16.9444	10891	76	8118	484	10904	76	22746	158	8030	94	11737	81
63.0	17.2222	10815	76	0.9987634	493	10828	75	22588	159	1.937936	95	11656	82
63.5	17.5000	10739	76	7141	502	10753	76	22429	159	7841	98	11574	81
64.0	17.7778	0.010663	75	0.9986639	510	0.010677	74	0.000022270	156	7743	99	0.000011493	80
64.5	18.0556	10588	73	6129	519	10603	73	22114	153	7644	100	11413	78
65.0	18.3333	10515	73	5610	526	10530	72	21961	152	7544	103	11335	79
65.5	18.6111	10442	73	5084	536	10458	73	21809	153	7441	104	11256	78
66.0	18.8889	10369	71	4548	544	10385	71	21656	148	7337	105	11178	76
66.5	19.1667	10298	70	4004	552	10314	69	21508	146	7232	107	11102	74
67.0	19.4444	0.010228	71	0.9983452	560	0.010245	71	0.000021362	149	1.937125	109	0.000011028	76
67.5	19.7222	10157	70	0.9982892	569	10174	69	21213	146	7016	110	10952	75

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Table 6: Density and Viscosity of Pure Water (continued)

<i>t</i>	<i>t</i>	μ	Δ	ρ	Δ	ν	Δ	μ	Δ	ρ	Δ	ν	Δ
° F.	° C.	$\frac{\text{Dyne Sec.}}{\text{Sq. Cm.}}$		$\frac{\text{Grams}}{\text{Cu. Cm.}}$		$\frac{\text{Sq. Cm.}}{\text{Sec.}}$		$\frac{\text{Lb. Sec.}}{\text{Sq. Ft.}}$		$\frac{\text{Slugs}}{\text{Cu. Ft.}}$		$\frac{\text{Sq. Ft.}}{\text{Sec.}}$	
1	2	3		4		5		6		7		8	
68.0	20.0000	10087		2323		10105		21067		1.936906		10877	
			68		576		68		142		112		73
68.5	20.2778	10019		0.9981747		10037		20925		6794		10804	
			68		585		67		142		114		73
69.0	20.5556	0.009951		1162		0.009970		20783		6680		10731	
			67		593		67		140		115		71
69.5	20.8333	9884		0.9980569		9903		20643		6565		10660	
			67		600		66		140		116		72
70.0	21.1111	0.009817		0.9979969		0.009837		0.000020503		1.936449		0.000010588	
			65		609		65		135		118		69
70.5	21.3889	9752		9360		9772		20368		6331		10519	
			66		617		65		138		120		71
71.0	21.6667	9686		0.9978743		9707		20230		6211		10448	
			65		624		65		136		121		69
71.5	21.9444	9621		8119		9642		20094		6090		10379	
			64		633		63		134		123		69
72.0	22.2222	9557		0.9977486		9579		19960		1.935967		10310	
			63		640		63		131		124		67
72.5	22.5000	9494		0.9976846		9516		19829		5843		10243	
			63		649		62		132		126		67
73.0	22.7778	0.009431		0.9976197		0.009454		0.000019697		1.935717		0.000010176	
			63		655		63		131		127		68
73.5	23.0556	9368		0.9975542		9391		19566		5590		10108	
			61		663		61		128		129		65
74.0	23.3333	9307		0.9974879		9330		19438		5461		10043	
			61		671		60		127		130		65
74.5	23.6111	9246		4208		9270		19311		5331		0.000009978	
			60		679		60		126		132		64
75.0	23.8889	9186		0.9973520		9210		19185		5199		9914	
			60		686		59		125		133		64
75.5	24.1667	9126		0.9972843		9151		19060		5066		9850	
			59		694		59		123		134		63
76.0	24.4444	0.009067		0.9972149		0.009092		0.000018937		1.934932		0.000009787	
			59		701		58		123		136		63
76.5	24.7222	9008		0.9971448		9034		18814		4796		9724	
			59		709		59		124		138		63
77.0	25.0000	0.008949		0.9970739		0.008975		18690		4658		9661	
			56		715		55		117		139		60
77.5	25.2778	8893		0.9970024		8920		18573		4519		9601	
			57		724		57		119		140		61
78.0	25.5556	8836		0.9969300		8863		18454		4379		9540	
			56		731		55		117		142		60
78.5	25.8333	8780		0.9968569		8808		18337		4237		9480	
			56		738		56		116		143		59
79.0	26.1111	0.008724		0.9967831		0.008752		0.000018221		1.934094		0.000009421	
			54		744		53		113		144		58
79.5	26.3889	8670		7087		8699		18108		1.933950		9363	
			54		753		54		113		147		58
80.0	26.6667	8616		0.9966334		8645		17995		3803		9305	
			54		760		53		113		147		57
80.5	26.9444	8562		0.9965574		8592		17882		3656		9248	
			53		767		53		111		149		57
81.0	27.2222	8509		0.9964807		8539		17771		3507		9191	
			52		774		51		108		150		55
81.5	27.5000	8457		4033		8488		17663		3357		9136	
			52		780		52		109		152		56
82.0	27.7778	0.008405		0.9963253		0.008436		0.000017554		1.933205		0.000009080	
			52		788		52		108		152		55
82.5	28.0556	8353		0.9962465		8384		17446		3053		9025	
			51		795		50		107		155		55
83.0	28.3333	8302		0.9961670		8334		17339		1.932898		0.000008970	
			50		801		50		104		155		53
83.5	28.6111	8252		0.9960869		8284		17235		2743		8917	
			51		810		50		107		157		54
84.0	28.8889	8201		0.9960059		8234		17128		2586		8863	
			50		815		50		104		158		53
84.5	29.1667	8151		0.9959244		8184		17024		2428		8810	
			49		822		48		103		160		53
85.0	29.4444	0.008102		0.9958422		0.008136		0.000016921		1.932268		0.000008757	
			49		830		49		102		161		52
85.5	29.7222	8053		0.9957592		8087		16819		2107		8705	
			49		836		48		102		162		52

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<i>t</i>	<i>t</i>	μ	Δ	ρ	Δ	ν	Δ	μ	Δ	ρ	Δ	ν	Δ
° F.	° C.	$\frac{\text{Dyne Sec.}}{\text{Sq. Cm.}}$		$\frac{\text{Grams}}{\text{Cu. Cm.}}$		$\frac{\text{Sq. Cm.}}{\text{Sec.}}$		$\frac{\text{Lb. Sec.}}{\text{Sq. Ft.}}$		$\frac{\text{Slugs}}{\text{Cu. Ft.}}$		$\frac{\text{Sq. Ft.}}{\text{Sec.}}$	
1	2	3		4		5		6		7		8	
86.0	30.0000	8004		0.9956756		8039		16717		1.931945		8653	
86.5	30.2778	0.007957	47	0.9955914	842	0.007992	47	16619	98	1781	164	8603	50
87.0	30.5556	7910	47	5064	850	7946	46	16520	99	1617	164	8553	50
87.5	30.8333	0.007862	48	0.9954207	857	0.007898	48	0.000016420	100	1.931450	167	0.000008501	52
88.0	31.1111	7816	46	0.9953345	862	7853	45	16324	96	1283	167	8452	49
88.5	31.3889	7770	46	0.9952477	868	7807	46	16228	96	1115	168	8403	49
89.0	31.6667	7725	45	0.9951601	876	7763	44	16134	94	1.930945	170	8356	47
89.5	31.9444	7679	46	0.9950719	882	7717	46	16038	96	0774	171	8307	49
90.0	32.2222	7635	44	0.9949830	889	7673	44	15946	92	0601	173	8260	47
90.5	32.5000	7590	45	0.9948935	895	7629	44	15852	94	0427	174	8212	48
91.0	32.7778	0.007546	44	0.9948033	902	0.007585	44	0.000015760	92	1.930252	175	0.000008165	47
91.5	33.0556	7502	44	0.9947126	907	7542	43	15668	92	1.930076	176	8118	47
92.0	33.3333	7460	42	0.9946211	915	7500	42	15581	87	1.929899	177	8073	45
92.5	33.6111	7417	43	0.9945291	920	7458	42	15491	90	9720	179	8027	46
93.0	33.8889	7374	43	0.9944364	927	7415	43	15401	90	9540	180	0.000007982	45
93.5	34.1667	7332	42	0.9943431	933	7374	41	15313	88	9359	181	7937	45
94.0	34.4444	0.007291	41	0.9942492	939	0.007333	41	0.000015228	85	1.929177	182	0.000007893	44
94.5	34.7222	7249	42	0.9941546	946	7292	41	15140	88	1.928994	183	7849	44
95.0	35.0000	7208	41	0.9940594	952	7251	41	15054	86	8809	185	7805	44
95.5	35.2778	7168	40	0.9939637	957	7212	39	14971	83	8623	186	7762	43
96.0	35.5556	7128	40	0.9938673	964	7172	40	14887	84	8436	187	7720	42
96.5	35.8333	7088	40	0.9937703	970	7132	40	14804	83	8248	188	7677	43
97.0	36.1111	0.007049	39	0.9936728	975	0.007094	38	0.000014722	82	1.928059	189	0.000007636	41
97.5	36.3889	7010	39	0.9935746	982	7055	39	14641	81	1.927868	191	7594	42
98.0	36.6667	0.006971	39	0.9934758	988	7017	38	14559	82	7677	191	7553	41
98.5	36.9444	6933	38	0.9933764	994	0.006979	38	14480	79	7484	193	7512	41
99.0	37.2222	6895	38	0.9932766	998	6942	37	14401	79	7290	194	7472	40
99.5	37.5000	6858	37	0.9931760	1006	6905	37	14323	78	7095	195	7433	39
100.0	37.7778	0.006821	37	0.9930749	1011	0.006869	36	0.000014246	77	1.926899	196	0.000007393	40
		From "International Critical Tables," Vol. V, 1929. Accuracy estimated at 0.1%. Linear interpolation may be used.		From "International Critical Tables," Vol. III, 1928		Column 5 = Column 3 Column 4		Col. 6 = Col. 3 \times 0.00208855151		Col. 7 = Col. 4 \times 1.94033561		Col. 8 = Col. 5 \times 0.00107638673 Col. 6 Checked by Col. 8 = Col. 7	

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