

TABLE E-1
Physical Properties of Ordinary Liquid Water*

Temp., °F	Specific heat c_p , Btu/lb _m °R			Thermal conduc- tivity k Btu/hr ft °F			Viscosity μ , lb _m /hr ft			Density ρ , lb _m /ft ³		
	Sat. liquid	1,000 psia	2,000 psia	Sat. liquid	1,000 psia	2,000 psia	Sat. liquid	1,000 psia	2,000 psia	Sat. liquid	1,000 psia	2,000 psia
32	1.0083	1.0022	1.0004	0.3185	0.3198	0.3211	4.340	4.309	4.279	62.422	62.637	63.846
40	1.0048	1.0014	0.9986	0.3245	0.3260	0.3275	3.742	3.721	3.699	62.422	62.657	62.854
60	0.9990	0.9968	0.9939	0.3397	0.3414	0.3433	2.731	2.722	2.714	62.344	62.539	62.755
80	0.9975	0.9943	0.9912	0.3532	0.3537	0.3570	2.084	2.084	2.083	62.189	62.383	62.586
100	0.9976	0.9932	0.9897	0.3641	0.3659	0.3680	1.650	1.654	1.658	61.996	62.185	62.371
120	0.9977	0.9934	0.9895	0.3733	0.3751	0.3771	1.353	1.360	1.366	61.728	61.920	62.104
140	0.9988	0.9940	0.9897	0.3810	0.3828	0.3847	1.137	1.145	1.154	61.387	61.576	61.767
160	1.0004	0.9959	0.9913	0.3861	0.3880	0.3902	0.970	0.979	0.988	61.013	61.200	61.395
180	1.0022	0.9980	0.9931	0.3905	0.3924	0.3945	0.839	0.849	0.858	60.569	60.753	60.953
200	1.0047	1.0008	0.9958	0.3935	0.3957	0.3980	0.738	0.748	0.757	60.132	60.314	60.511
210	1.0064	1.0024	0.9974	0.3944	0.3972	0.3998	0.687	0.697	0.706	59.809	60.006	60.205
220	1.0079	1.0039	0.9988	0.3950	0.3977	0.4003	0.660	0.670	0.680	59.630	59.830	60.031
240	1.0119	1.0075	1.0023	0.3961	0.3988	0.4016	0.595	0.604	0.614	59.102	59.305	59.506
260	1.0165	1.0117	1.0061	0.3964	0.3992	0.4021	0.542	0.551	0.560	58.514	58.727	58.938
280	1.0222	1.0163	1.0102	0.3959	0.3987	0.4018	0.494	0.502	0.511	57.937	58.156	58.377

300	1.0289	1.0232	1.0166	0.3952	0.3981	0.4013	0.452	0.460	0.468	57.307	57.537	57.767
320	1.0354	1.0307	1.0235	0.3944	0.3969	0.3998	0.420	0.426	0.433	56.657	56.883	57.136
340	1.0455	1.0999	1.0322	0.3921	0.3947	0.3977	0.391	0.396	0.404	55.960	56.211	56.465
360	1.0564	1.0496	1.0411	0.3891	0.3919	0.3951	0.366	0.372	0.378	55.218	55.463	55.710
380	1.0669	1.0611	1.0510	0.3857	0.3885	0.3919	0.346	0.351	0.356	54.466	54.720	55.012
400	1.0794	1.074	1.062	0.3809	0.3840	0.3880	0.327	0.330	0.335	53.648	53.903	54.218
420	1.0941	1.087	1.075	0.3753	0.3787	0.3833	0.310	0.312	0.317	52.798	53.042	53.396
440	1.1114	1.105	1.091	0.3693	0.3728	0.3776	0.294	0.296	0.301	51.921	52.154	52.546
460	1.1319	1.124	1.109	0.3640	0.3664	0.3713	0.280	0.282	0.286	51.020	51.230	51.661
480	1.1345	1.149	1.131	0.3575	0.3595	0.3642	0.267	0.270	0.273	50.000	50.191	50.659
500	1.1861	1.176	1.154	0.3494	0.3510	0.3562	0.256	0.257	0.260	49.020	49.097	49.618
520	1.23	1.21	1.188	0.3397	0.3410	0.3475	0.246	0.246	0.249	47.847	.....	48.527
540	1.28	.....	1.225	0.3298	.....	0.3371	0.235	0.235	0.239	46.512	.....	47.181
560	1.34	.....	1.278	0.3189	.....	0.3256	0.225	.....	0.231	45.249	.....	45.905
580	1.41	.....	1.341	0.3064	.....	0.3118	0.217	.....	0.222	43.860	.....	44.492
600	1.51	.....	1.448	0.2919	.....	0.2962	0.210	.....	0.212	43.373	.....	42.913
620	1.65	.....	1.62	0.2753	.....	0.2778	0.200	.....	0.202	40.486	.....	40.950
640	1.88	.....	.....	0.2565	.....	.....	0.190	.....	.....	38.452	.....	.....
660	2.34	.....	.....	0.2335	.....	.....	0.177	.....	.....	35.971	.....	.....
680	3.5	.....	.....	0.2056	.....	.....	0.161	.....	.....	32.787	.....	.....
690	5.5	.....	.....	0.1854	.....	.....	0.48	.....	.....	30.488	.....	.....

* c_p , μ , and k data from Ref. 145. ρ data computed from Keenan and Keyes (Table D-1).