

■ Table B.1

Physical Properties of Water (BG Units)^a

Temperature (°F)	Density, ρ (slugs/ft ³)	Specific Weight ^b , γ (lb/ft ³)	Dynamic Viscosity, μ (lb·s/ft ²)	Kinematic Viscosity, ν (ft ² /s)	Surface Tension ^c , σ (lb/ft)	Vapor Pressure, p_v [lb/in. ² (abs)]	Speed of Sound ^d , c (ft/s)
32	1.940	62.42	3.732 E - 5	1.924 E - 5	5.18 E - 3	8.854 E - 2	4603
40	1.940	62.43	3.228 E - 5	1.664 E - 5	5.13 E - 3	1.217 E - 1	4672
50	1.940	62.41	2.730 E - 5	1.407 E - 5	5.09 E - 3	1.781 E - 1	4748
60	1.938	62.37	2.344 E - 5	1.210 E - 5	5.03 E - 3	2.563 E - 1	4814
70	1.936	62.30	2.037 E - 5	1.052 E - 5	4.97 E - 3	3.631 E - 1	4871
80	1.934	62.22	1.791 E - 5	9.262 E - 6	4.91 E - 3	5.069 E - 1	4819
90	1.931	62.11	1.500 E - 5	8.233 E - 6	4.86 E - 3	6.979 E - 1	4960
100	1.927	62.00	1.423 E - 5	7.383 E - 6	4.79 E - 3	9.493 E - 1	4995
120	1.918	61.71	1.164 E - 5	6.067 E - 6	4.67 E - 3	1.692 E + 0	5049
140	1.908	61.38	9.743 E - 6	5.106 E - 6	4.53 E - 3	2.888 E + 0	5091
160	1.896	61.00	8.315 E - 6	4.385 E - 6	4.40 E - 3	4.736 E + 0	5101
180	1.883	60.58	7.207 E - 6	3.827 E - 6	4.26 E - 3	7.507 E + 0	5195
200	1.869	60.12	6.342 E - 6	3.393 E - 6	4.12 E - 3	1.152 E + 1	5089
212	1.860	59.83	5.886 E - 6	3.165 E - 6	4.04 E - 3	1.469 E + 1	5062

^aBased on data from *Handbook of Chemistry and Physics*, 69th Ed., CRC Press, 1988. Where necessary, values obtained by interpolation.

^bDensity and specific weight are related through the equation $\gamma = \rho g$. For this table, $g = 32.174 \text{ ft/s}^2$.

^cIn contact with air.

^dBased on data from R. D. Blevins, *Applied Fluid Dynamics Handbook*, Van Nostrand Reinhold Co., Inc., New York, 1984.

■ Table B.2

Physical Properties of Water (SI Units)^a

Temperature (°C)	Density, ρ (kg/m ³)	Specific Weight ^b , γ (kN/m ³)	Dynamic Viscosity, μ (N·s/m ²)	Kinematic Viscosity, ν (m ² /s)	Surface Tension ^c , σ (N/m)	Vapor Pressure, p_v [N/m ² (abs)]	Speed of Sound ^d , c (m/s)
0	999.9	9.806	1.787 E - 3	1.787 E - 6	7.56 E - 2	6.105 E + 2	1403
5	1000.0	9.807	1.519 E - 3	1.519 E - 6	7.49 E - 2	8.722 E + 2	1427
10	999.7	9.804	1.307 E - 3	1.307 E - 6	7.42 E - 2	1.228 E + 3	1447
20	998.2	9.789	1.002 E - 3	1.004 E - 6	7.28 E - 2	2.338 E + 3	1481
30	995.7	9.765	7.975 E - 4	8.009 E - 7	7.12 E - 2	4.243 E + 3	1507
40	992.2	9.731	6.529 E - 4	6.580 E - 7	6.96 E - 2	7.376 E + 3	1526
50	988.1	9.690	5.468 E - 4	5.534 E - 7	6.79 E - 2	1.233 E + 4	1541
60	983.2	9.642	4.665 E - 4	4.745 E - 7	6.62 E - 2	1.992 E + 4	1552
70	977.8	9.589	4.042 E - 4	4.134 E - 7	6.44 E - 2	3.116 E + 4	1555
80	971.8	9.530	3.547 E - 4	3.650 E - 7	6.26 E - 2	4.734 E + 4	1555
90	965.3	9.467	3.147 E - 4	3.260 E - 7	6.08 E - 2	7.010 E + 4	1550
100	958.4	9.399	2.818 E - 4	2.940 E - 7	5.89 E - 2	1.013 E + 5	1543

^aBased on data from *Handbook of Chemistry and Physics*, 69th Ed., CRC Press, 1988.

^bDensity and specific weight are related through the equation $\gamma = \rho g$. For this table, $g = 9.807 \text{ m/s}^2$.

^cIn contact with air.

^dBased on data from R. D. Blevins, *Applied Fluid Dynamics Handbook*, Van Nostrand Reinhold Co., Inc., New York, 1984.