General Water Information

- At 4°C pure water has a density (weight or mass) of about 1 g/cu.cm, 1 g/ml, 1 kg/liter, 1000 kg/cu.m, 1 ton/cu.m or 62.4 lb/cu.ft
- At 4°C pure water has a specific gravity of 1. (Some reference the s.g. base temperature as 60F.)
- Water is essential for life. Most animals and plants contain more than 60 % water by volume.
- More than 70 % of the Earth's surface is covered with about 1.36 billion cubic kilometers of water / ice
- The density of pure water is a constant at a particular temperature, and does not depend on the size of the sample. That is, it is an intensive property. The density of water varies with temperature and impurities.
- Water is the only substance on Earth that exists in all three physical states of matter: solid, liquid and gas.
- When water freezes it expands rapidly adding about 9 % by volume. Fresh water has a maximum density at around 4° Celsius. Water is the only substance where the maximum density does not occur when solidified. As ice is lighter than water, it floats.
- Water has a very simple atomic structure. This structure consists of two hydrogen atoms bonded to one oxygen atom - H_2O

Note; kg/m^3 divided by 16.02 = lbs/cu.ft. kg/m^3 divided by 1,000 = g/ml
Convert g/cm^3 = g/cc = g/ml = g/mL - they are all the same.

Temp (°C)	**Density** pure water (g/cm^3)	**Density** pure water (kg/m^3)	**Density** tap water (g/cm^3)	**Density** pure water lb/cu.ft	**Specific Gravity** 4°C reference	**Specific Gravity** 60°F reference
0 (solid)	0.9150	915.0	-	-	0.915	-

0 (liquid)	0.9999	999.9	0.99987	62.42	0.999	1.002
4	1.0000	1000	0.99999	62.42	1.000	1.001
20	0.9982	998.2	0.99823	62.28	0.998	0.999
40	0.9922	992.2	0.99225	61.92	0.992	0.993
60	0.9832	983.2	0.98389	61.39	0.983	0.985
80	0.9718	971.8	0.97487	60.65	0.972	0.973
100 (gas)	0.0006	Steam above this...			-	-

To use the table below, run down the left column for whole degrees then move across for tenths of a degree.

For example, the row/column shaded in aquamarine shows the density of pure water at 17.7°C = 0.998650 grams/cm³

Density of Water (g/cm³) at Temperatures from 0°C (liquid state) to 30.9°C by 0.1°C inc.

Degrees +	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	.999841	.999847	.999854	.999860	.999866	.999872	.999878	.999884	.999889	.999895
1	.999900	.999905	.999909	.999914	.999918	.999923	.999927	.999930	.999934	.999938
2	.999941	.999944	.999947	.999950	.999953	.999955	.999958	.999960	.999962	.999964
3	.999965	.999967	.999968	.999969	.999970	.999971	.999972	.999972	.999973	.999973

4	.999973	.999973	.999973	.999972	.999972	.999972	.999970	.999969	.999968	.999966
5	.999965	.999963	.999961	.999959	.999957	.999955	.999952	.999950	.999947	.999944
6	.999941	.999938	.999935	.999931	.999927	.999924	.999920	.999916	.999911	.999907
7	.999902	.999898	.999893	.999888	.999883	.999877	.999872	.999866	.999861	.999855
8	.999849	.999843	.999837	.999830	.999824	.999817	.999810	.999803	.999796	.999789
9	.999781	.999774	.999766	.999758	.999751	.999742	.999734	.999726	.999717	.999709
10	.999700	.999691	.999682	.999673	.999664	.999654	.999645	.999635	.999625	.999615
11	.999605	.999595	.999585	.999574	.999564	.999553	.999542	.999531	.999520	.999509
12	.999498	.999486	.999475	.999463	.999451	.999439	.999427	.999415	.999402	.999390
13	.999377	.999364	.999352	.999339	.999326	.999312	.999299	.999285	.999272	.999258
14	.999244	.999230	.999216	.999202	.999188	.999173	.999159	.999144	.999129	.999114
15	.999099	.999084	.999069	.999054	.999038	.999023	.999007	.998991	.998975	.998959
16	.998943	.998926	.998910	.998893	.998877	.998860	.998843	.998826	.998809	.998792
17	.998774	.998757	.998739	.998722	.998704	.998686	.998668	.998650	.998632	.998613
18	.998595	.998576	.998558	.998539	.998520	.998501	.998482	.998463	.998444	.998424
19	.998405	.998385	.998365	.998345	.998325	.998305	.998285	.998265	.998244	.998224
20	.998203	.998183	.998162	.998141	.998120	.998099	.998078	.998056	.998035	.998013
21	.997992	.997970	.997948	.997926	.997904	.997882	.997860	.997837	.997815	.997792

22	.997770	.997747	.997724	.997701	.997678	.997655	.997632	.997608	.997585	.997561
23	.997538	.997514	.997490	.997466	.997442	.997418	.997394	.997369	.997345	.997320
24	.997296	.997271	.997246	.997221	.997196	.997171	.997146	.997120	.997095	.997069
25	.997044	.997018	.996992	.996967	.996941	.996914	.996888	.996862	.996836	.996809
26	.996783	.996756	.996729	.996703	.996676	.996649	.996621	.996594	.996567	.996540
27	.996512	.996485	.996457	.996429	.996401	.996373	.996345	.996317	.996289	.996261
28	.996232	.996204	.996175	.996147	.996118	.996089	.996060	.996031	.996002	.995973
29	.995944	.995914	.995885	.995855	.995826	.995796	.995766	.995736	.995706	.995676
30	.995646	.995616	.995586	.995555	.995525	.995494	.995464	.995433	.995402	.995371
Degrees +	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9

The following table shows the volume that 1 gram of water occupies as temperature varies. Data corrected for buoyancy and for the thermal expansion of the container.

Temperature (°C)	Volume (mL)
17.0	1.0022
18.0	1.0024
19.0	1.0026
20.0	1.0028
21.0	1.0030
22.0	1.0033
23.0	1.0035
24.0	1.0037
25.0	1.0040
26.0	1.0043