

Instruction Sheet

Orion Conductivity/TDS Standards

The following table contains conductance values for Orion Conductivity/TDS Standards at a range of temperatures. The conductivity value at the temperature of the standard must be used when using the DirectCal™ calibration procedure available on some Orion Conductivity Meters. There may be small differences between the values shown here and other values in the literature, as well as label values on Orion standards formulated before 1995. These small differences, typically less than 0.4%, are due to using kilograms of water rather than liters, as well as changes in assigned molecular weights, definitions of the Siemen, the use of slightly different temperature scales, and whether or not the inherent conductivity of water was subtracted out. For further information, see “Review of Electrolytic Conductance Standards”, Wu, Koch, Hamer and Kay, J. Soln. Chem. 1987, 16, 985-997.

Total Dissolved Solids Measurement

The standard method of determining TDS (Total Dissolved Solids) is by evaporating the sample to dryness at 180° and weighing the residue. Conductivity can be used to estimate TDS. This is done by calculating what concentration of sodium chloride would have the same conductivity as the sample at the same temperature. Orion conductivity systems report a sample's TDS value in mg/L of sodium chloride by comparing its conductivity and temperature to data stored in the meter's memory. Data were obtained from the International Critical Tables. For values of temperature between 5 and 70°C, and TDS values of 0 to 19,999 mg/L, the displayed TDS value agrees with the Critical Tables values with an accuracy of 0.87% R.S.D.

Ordering Information

Orion	Description
011006	Conductivity/TDS Standard, 12.9 mS/cm, 7230 ppm as NaCl, 5x60 mL Bottles
011007	Conductivity/TDS Standard, 1413 mS/cm, 692 ppm as NaCl, 5x60 mL Bottles
011008	Conductivity/TDS Standard, 100 mS/cm, 47 ppm as NaCl, 5x60 mL Bottles

Table of Conductance vs. Temperature. Values shown are in microSiemen/cm

Temperature, Degrees C	Conductivity Standard Orion 011006	Conductivity Standard Orion 011007	Conductivity Standard Orion 011008
0	7135	773	54
1	7344	796	56
2	7555	820	58
3	7768	843	59
4	7983	867	61
5	8200	891	63
6	8418	915	64
7	8638	940	66
8	8860	964	68
9	9084	989	70
10	9309	1014	72
11	9535	1039	73
12	9763	1065	75
13	9993	1090	77
14	10224	1116	79
15	10457	1142	81
16	10690	1168	83
17	10926	1194	85
18	11162	1220	87
19	11400	1247	88
20	11639	1273	90
21	11879	1300	92
22	12121	1327	94
23	12364	1354	96
24	12607	1381	98
25	12852	1409	100
26	13098	1436	102
27	13345	1464	104
28	13593	1491	106
29	13842	1519	108
30	14091	1547	110
31	14342	1575	112
32	14593	1603	114
33	14845	1631	117
34	15098	1660	119
35	15352	1688	121
36	15607	1717	123
37	15862	1745	125
38	16117	1774	127
39	16374	1803	129
40	16631	1832	131
41	16888	1861	134
42	17146	1890	136
43	17404	1919	138
44	17663	1948	140
45	17922	1977	142
46	18181	2007	145
47	18441	2036	147
48	18701	2065	149
49	18962	2095	151
50	19222	2124	154

Environmental Instruments

Water Analysis

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