Instruction Sheet

Thermo Scientific Orion Conductivity/TDS Standards

This instruction sheet contains conductance values for the Thermo Scientific Orion conductivity/TDS standards at a range of temperatures. The conductivity value of the standard at its measured temperature must be used when following the manual calibration procedure and the direct calibration procedure, available with most Thermo Scientific Orion conductivity meters. There may be small differences between the values shown here and values in literature, as well as label values on Thermo Scientific Orion standards that were formulated before 1995. These small differences, typically less than 0.4%, are due to the use of kilograms of water rather than liters, 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 additional information, refer to "Review of Electrolytic Conductance Standards", Wu, Koch, Hamer and Kay, J. Soln. Chem. 1987, 16, 985-997.

Total Dissolved Solids Measurements

The standard method of determining TDS (total dissolved solids) is by evaporating the sample to dryness at 180 °C 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. Thermo Scientific Orion conductivity meters report a sample's TDS value in mg/L of sodium chloride by comparing the conductivity and temperature of the sample to data stored in the meter's memory. The stored data was obtained from the International Critical Tables. For temperature values between 5 and 70 °C, and TDS values between 0 and 19,999 mg/L, the displayed TDS value agrees with the International Critical Tables values with an accuracy of 0.87% RSD.

Ordering Information

Cat. No.	Description
011008	100 µS/cm conductivity standard, 47 ppm as NaCl TDS standard, 5 x 60 mL bottles
01100910	147 µS/cm conductivity standard, 10 x 15 mL pouches
011007	1413 µS/cm conductivity standard, 692 ppm as NaCl TDS standard, 5 x 60 mL bottles
01100710	1413 µS/cm conductivity standard, 692 ppm as NaCl TDS standard, 10 x 15 mL pouches
011006	12.9 mS/cm conductivity standard, 7230 ppm as NaCl TDS standard, 5 x 60 mL bottles
01100610	12.9 mS/cm conductivity standard, 7230 ppm as NaCl TDS, 10 x 15 mL pouches
011005	111.9 mS/cm conductivity standard, 5 x 60 mL bottles
01100510	111.9 mS/cm conductivity standard, 10 x 15 mL pouches
990106	0.1 M KCl conductivity standard, 475 mL bottle

Thermo SCIENTIFIC

Conductivity vs. Temperature Table

Temperature (°C)	111.9 mS/cm Conductivity Standard (mS/cm)	12.9 mS/cm Conductivity Standard (mS/cm)	1413 µS/cm Conductivity Standard (µS/cm)	147 µS/cm Conductivity Standard (µS/cm)	100 µS/cm Conductivity Standard (µS/cm)
0	65.10	7.135	776	81	54
1	66.84	7.344	799	83	56
2	68.59	7.555	822	86	58
3	70.35	7.768	846	88	59
4	72.12	7.983	870	91	61
5	73.91	8.200	894	93	63
6	75.70	8.418	918	96	64
7	77.50	8.638	943	98	66
8	79.32	8.860	968	101	68
9	81.15	9.084	992	103	70
10	82.98	9.309	1017	106	72
11	84.83	9.535	1043	108	73
12	86.69	9.763	1068	111	75
13	88.56	9.993	1094	114	77
14	90.45	10.22	1119	116	79
15	92.34	10.46	1145	119	81
16	94.24	10.69	1171	122	83
17	96.15	10.93	1198	125	85
18	98.08	11.16	1224	127	87
19	100.0	11.40	1251	130	88
20	102.0	11.64	1277	133	90
21	103.9	11.88	1304	136	92
22	105.9	12.12	1331	138	94
23	107.9	12.36	1358	141	96
24	109.9	12.61	1386	144	98
25	111.9	12.85	1413	147	100
26	113.9	13.10	1441	150	102
27	115.9	13.35	1468	153	104
28	117.9	13.59	1496	156	106
29	120.0	13.84	1524	159	108
30	122.0	14.09	1552	161	110
31	124.1	14.34	1580	164	112
32	126.2	14.59	1608	167	114
33	128.3	14.85	1636	170	117
34	130.4	15.10	1665	173	119
35	132.5	15.35	1693	176	121
36	134.6	15.61	1722	179	123
37	136.7	15.86	1751	182	125
38	138.9	16.12	1780	185	127
39	141.0	16.37	1808	188	129
40	143.2	16.63	1837	191	131
41	145.4	16.89	1866	194	134
42	147.6	17.15	1896	197	136
43	149.8	17.40	1925	200	138
44	152.0	17.66	1954	203	140
45	154.2	17.92	1983	206	142
46	156.4	18.18	2013	209	145
47	158.7	18.44	2042	212	147
48	160.9	18.70	2071	215	149
49	163.2	18.96	2101	219	151
50	165.4	19.22	2130	222	154

Environmental Instruments
Water Analysis Instruments

166 Cummings Center
Beverly, MA 01915 USA

Toll Free: 1-800-225-1480
Tel: 1-978-232-6000
Dom. Fax: 1-978-232-6015
Int'l Fax: 978-232-6031
www.thermo.com/water

255040-001 Rev.A 03-08

Thermo SCIENTIFIC