Preparation of Conductivity Standard Solution

Table 1 Potassium Chloride Concentration and Conductivity Value

Approximate Concentration mol/L	Conductivity ms/cm				
	15℃	18℃	20℃	25℃	35℃
1	92.12	97.80	101.70	111.31	131.10
0.1	10.455	11.163	11.644	12.852	15.353
0.01	1.1414	1.2200	1.2737	1.4083	1.6876
0.001	0.1185	0.1267	0.1322	0.1466	0.1765

Table 2 Solution Composition

Approximate Concentration mol/L	Solution Concentration (KCL) g/L（20℃ in air）
1	74.2650
0.1	7.4365
0.01	0.7440
0.001	Dilute 100ml 0.01 mol/L solution 10 times

Preparation method：

1. Take an appropriate amount of KCL and dry it at 220-240℃ for 2 hours, and put it in a desiccator to cool to room temperature.
2. Prepare different standard solutions according to the corresponding relationship in the above table. For example: weigh 74.2650g of KCL from step 1 and dissolve it in deionized water at 20°C (the conductivity value of the water is not greater than 0.2μs/cm (25°C)), transfer to a 1L volumetric flask and make the constant volume to 1L to obtain a conductivity standard solution with a conductivity value of 111.31ms/cm (25°C).

Precautions for use and preservation：

1. When using, all test instruments must be wiped clean to ensure that no deionized water or solid particles (dust, etc.) enter the standard solution.
2. When the use is standard and the frequency is low, sealed and preserved in glass (polyethylene plastic) bottles for half a year.
3. When the frequency of use is high, replace it according to the specific situation（if the solution appears turbid or precipitates, it must be replaced immediately; if a trace of deionized water remains on the instrument and enters the standard solution during the test, it must be replaced after one month of use at most）.