

Application Note: Number AN4 Useful Conductivity Information

| Cell resistance for calibration and simulation | | | | |
|--|----------------------------|----------------------------|--------------------------|--------------------------|
| Cell K Factor | mS/cm (milliSiemens/cm) | uS/cm (microSiemens/cm) | uS/m (microSiemens/m) | Substitute Resistance |
| K=1 | 1 | 1,000 | 100,000 | 1,000Ω (1kΩ) |
| K=1 | 0.1 | 100 | 10,000 | 10,000Ω (10kΩ) |
| K=1 | 0.01 | 10 | 1,000 | 100,000Ω (100kΩ) |
| K=0.1 | 1 | 1,000 | 100,000 | 100Ω |
| K=0.1 | 0.1 | 100 | 10,000 | 1,000Ω (1kΩ) |
| K=0.1 | 0.01 | 10 | 1,000 | 10,000Ω (10kΩ) |
| K=0.1 | 0.01 | 1 | 100 | 100,000Ω (100kΩ) |
| K=0.1 | 0.001 | 0.1 | 10 | 1,000,000Ω (1MΩ) |

Conductivity test solutions

1 Normal KCl is 74.7gms dissolved in distilled water and then made up to 1 litre

0.1 Normal KCl is 7.47 gms KCl dissolved in distilled water and then made up to 1 litre

0.02 Normal KCl is 1.494 gms KCl dissolved in distilled water and then made up to 1 litre

0.01 Normal KCl is .747 gms KCl dissolved in distilled water and then made up to 1 litre

| Conductivity values of Potassium Chloride | | | | | | | | |
|---|--------|---------|----------|--------|-----------|-------|-----------|-------|
| Temp | 1N KCl | | 0.1N KCl | | 0.02N KCl | | 0.01N KCl | |
| | mS/cm | uS/cm | mS/cm | uS/cm | mS/cm | uS/cm | mS/cm | uS/cm |
| 0 | 65.41 | 65,410 | 7.15 | 7,150 | 1.53 | 1,530 | .776 | 776 |
| 5 | 74.14 | 74,140 | 8.22 | 8,220 | 1.74 | 1,740 | .896 | 896 |
| 10 | 88.19 | 88,190 | 9.33 | 9,330 | 1.99 | 1,990 | 1.02 | 1,020 |
| 15 | 92.52 | 92,520 | 10.48 | 10,480 | 2.24 | 2,240 | 1.147 | 1,147 |
| 16 | 94.41 | 94,410 | 10.72 | 10,720 | 2.29 | 2,290 | 1.173 | 1,173 |
| 17 | 96.31 | 96,310 | 10.95 | 10,950 | 2.35 | 2,350 | 1.199 | 1,199 |
| 18 | 98.22 | 98,220 | 11.19 | 11,190 | 2.40 | 2,400 | 1.225 | 1,225 |
| 19 | 100.14 | 100,140 | 11.43 | 11,430 | 2.45 | 2,450 | 1.251 | 1,251 |
| 20 | 102.07 | 102,070 | 11.67 | 11,670 | 2.50 | 2,500 | 1.278 | 1,278 |
| 21 | 104.00 | 104,000 | 11.91 | 11,910 | 2.55 | 2,550 | 1.305 | 1,305 |
| 22 | 105.94 | 105,940 | 12.15 | 12,150 | 2.60 | 2,600 | 1.332 | 1,332 |
| 23 | 107.89 | 107,890 | 12.39 | 12,390 | 2.66 | 2,660 | 1.359 | 1,359 |
| 24 | 109.84 | 109,840 | 12.64 | 12,640 | 2.71 | 2,710 | 1.386 | 1,386 |
| 25 | 111.80 | 111,800 | 12.88 | 12,880 | 2.76 | 2,760 | 1.413 | 1,413 |
| 26 | 113.77 | 113,770 | 13.13 | 13,130 | 2.819 | 2,819 | 1.437 | 1,437 |
| 27 | 115.74 | 115,740 | 13.37 | 13,370 | 2.873 | 2,873 | 1.462 | 1,462 |
| 28 | 117.74 | 117,740 | 13.62 | 13,620 | 2.927 | 2,927 | 1.488 | 1,488 |
| 29 | 119.78 | 119,780 | 13.81 | 13,810 | 2.981 | 2,981 | 1.513 | 1,513 |
| 30 | 121.85 | 121,850 | 14.12 | 14,120 | 3.036 | 3,036 | 1.540 | 1,540 |