Reference: P. W. Atkins, Physical Chemistry (6th ed.), Oxford University Press (1998).

Table 24.4 Limiting ionic conductivities in water at 298 K, $\lambda/(\text{mS m}^2\ \text{mol}^{-1})$

Cations		Anions	
Ba^{2+}	12.72	Br^-	7.81
Ca^{2+}	11.90	$CH_3CO_2^-$	4.09
Cs^+	7.72	Cl^-	7.635
Cu^{2+}	10.72	ClO_4^-	6.73
H^+	34.96	CO_3^{2-}	13.86
K^+	7.350	$(CO_2)_2^{2-}$	14.82
Li^+	3.87	F^-	5.54
Mg^{2+}	10.60	$[Fe(CN)_6]^{3-}$	30.27
Na^+	5.010	$[Fe(CN)_6]^{4-}$	44.20
$[N(C_2H_5)_4]^+$	3.26	HCO_2^-	5.46
$[N(CH_3)_4]^+$	4.49	I^-	7.68
NH_4^+	7.35	NO_3^-	7.146
Rb^+	7.78	OH^-	19.91
Sr^{2+}	11.89	SO_4^{2-}	16.00
Zn^{2+}	10.56		

Data: KL, RS

Table 24.5 Ionic mobilities in water at 298 K, $u/(10^{-8}\ \text{m}^2\ \text{s}^{-1}\ \text{V}^{-1})$

Cations		Anions
Ag^+	6.42	Br^-
Ca^{2+}	6.17	$CH_3CO_2^-$
Cu^{2+}	5.56	Cl^-
H^+	36.23	CO_3^{2-}
K^+	7.62	F^-
Li^+	4.01	$[Fe(CN)_6]^{3-}$
Na^+	5.19	$[Fe(CN)_6]^{4-}$
NH_4^+	7.63	I^-
$[N(CH_3)_4]^+$	4.65	NO_3^-
Rb^+	7.92	OH^-
Zn^{2+}	5.47	SO_4^{2-}

Data: Principally Table 24.4 and $u = \lambda/zF$

Table 24.6 Debye–Hückel–Onsager coefficients for (1,1)-electrolytes at 25 °C

Solvent	$A/(\text{mS m}^2\ \text{mol}^{-1}/(\text{mol L}^{-1})^{1/2})$	$B/(\text{mol L}^{-1})$
Acetone (propanone)	3.28	1.63
Acetonitrile	2.29	0.716
Ethanol	8.97	1.83
Methanol	15.61	0.923
Nitrobenzene	4.42	0.776
Nitromethane	111	0.708
Water	6.020	0.229

Data: J.O'M. Bockris and A.K.N. Reddy, *Modern electrochemistry*. Plenum, New York (1970).

Table 24.7 Diffusion coefficients at 25 °C, $D/(10^{-9}\ \text{m}^2\ \text{s}^{-1})$

Molecules in liquids				Ions in water			
I_2 in hexane	4.05	H_2 in CCl_4(l)	9.75	K^+	1.96	Br^-	2.08
in benzene	2.13	N_2 in CCl_4(l)	3.42	H^+	9.31	Cl^-	2.03
CCl_4 in heptane	3.17	O_2 in CCl_4(l)	3.82	Li^+	1.03	F^-	1.46
Glycine in water	1.055	Ar in CCl_4(l)	3.63	Na^+	1.33	I^-	2.05
Dextrose in water	0.673	CH_4 in CCl_4(l)	2.89			OH^-	5.30
Sucrose in water	0.5216	H_2O in water	2.26				
		CH_3OH in water	1.58				
		C_2H_5OH in water	1.24				

Data: AIP and (for the ions) $\lambda = zuF$ in conjunction with Table 24.5.