

STANDARD SOLUTIONS OF ACIDS, BASES, AND SALTS

For each compound listed, the last column of this table gives the mass in grams which is contained in 1 liter of a solution whose amount-of-substance concentration divided by the equivalence factor of the compound equals 0.1 mol/L. In the older literature such a solution is often referred to as a "decinormal solution" (0.1 N).

REFERENCE

Compendium of Analytical Nomenclature (IUPAC), Pergamon Press, Oxford, 1978.

Name	Formula	Atomic or molecular weight	Equivalence factor	Mass in grams
Acetic acid	HC ₂ H ₃ O ₂	60.0530	1	6.0053
Ammonia	NH ₃	17.0306	1	1.7031
Ammonium ion	NH ₄ ⁺	18.0386	1	1.8039
Ammonium chloride	NH ₄ Cl	53.4916	1	5.3492
Ammonium sulfate	(NH ₄) ₂ SO ₄	132.1388	1/2	6.6069
Ammonium thiocyanate	NH ₄ CNS	76.1204	1	7.6120
Barium	Ba	137.34	1/2	6.867
Barium carbonate	BaCO ₃	197.3494	1/2	9.8675
Barium chloride hydrate	BaCl ₂ · 2H ₂ O	244.2767	1/2	12.2138
Barium hydroxide	Ba(OH) ₂	171.3547	1/2	8.5677
Barium oxide	BaO	153.3394	1/2	7.6670
Bromine	Br	79.909	1	7.9909
Calcium	Ca	40.08	1/2	2.004
Calcium carbonate	CaCO ₃	100.0894	1/2	5.0045
Calcium chloride	CaCl ₂	110.9860	1/2	5.5493
Calcium chloride hydrate	CaCl ₂ · 6H ₂ O	219.0150	1/2	10.9508
Calcium hydroxide	Ca(OH) ₂	74.0947	1/2	3.7047
Calcium oxide	CaO	56.0794	1/2	2.8040
Chlorine	Cl	35.453	1	3.5453
Citric acid	C ₆ H ₈ O ₇ · H ₂ O	210.1418	1/3	7.0047
Cobalt	Co	58.9332	1/2	2.9466
Copper	Cu	63.54	1/2	3.177
Copper oxide (cupric)	CuO	79.5394	1/2	3.9770
Copper sulfate hydrate	CuSO ₄ · 5H ₂ O	249.6783	1/2	12.4839
Hydrochloric acid	HCl	36.4610	1	3.6461
Hydrocyanic acid	HCN	27.0258	1	2.7026
Iodine	I	126.9044	1	12.6904
Lactic acid	C ₃ H ₆ O ₃	90.0795	1	9.0080
Malic acid	C ₄ H ₆ O ₅	134.0894	1/2	6.7045
Magnesium	Mg	24.312	1/2	1.2156
Magnesium carbonate	MgCO ₃	84.3214	1/2	4.2161
Magnesium chloride	MgCl ₂	95.2180	1/2	4.7609
Magnesium chloride hydrate	MgCl ₂ · 6H ₂ O	203.2370	1/2	10.1623
Magnesium oxide	MgO	40.3114	1/2	2.0156
Manganese	Mn	54.938	1/2	2.7469
Manganese sulfate	MnSO ₄	150.9996	1/2	7.5500
Mercuric chloride	HgCl ₂	271.4960	1/2	13.5748
Nickel	Ni	58.71	1/2	2.9356
Nitric acid	HNO ₃	63.0129	1	6.3013
Oxalic acid	H ₂ C ₂ O ₄	90.0358	1/2	4.5018
Oxalic acid hydrate	H ₂ C ₂ O ₄ · 2H ₂ O	126.0665	1/2	6.3033
Oxalic acid anhydride	C ₂ O ₃	72.0205	1/2	3.6010
Phosphoric acid	H ₃ PO ₄	97.9953	1/3	3.2665
Potassium	K	39.102	1	3.9102
Potassium bicarbonate	KHCO ₃	100.1193	1	10.0119
Potassium carbonate	K ₂ CO ₃	138.2134	1/2	6.9106
Potassium chloride	KCl	74.5550	1	7.4555

STANDARD SOLUTIONS OF ACIDS, BASES, AND SALTS (continued)

Name	Formula	Atomic or molecular weight	Equivalence factor	Mass in grams
Potassium cyanide	KCN	65.1199	1	6.5120
Potassium hydroxide	KOH	56.1094	1	5.6109
Potassium oxide	K ₂ O	94.2034	1/2	4.7102
Potassium tartrate	K ₂ H ₄ C ₄ O ₆	226.2769	1/2	11.3139
Silver	Ag	107.87	1	10.787
Silver nitrate	AgNO ₃	169.8749	1	16.9875
Sodium	Na	22.9898	1	2.2990
Sodium bicarbonate	NaHCO ₃	84.0071	1	8.4007
Sodium carbonate	Na ₂ CO ₃	105.9890	1/2	5.2995
Sodium chloride	NaCl	58.4428	1	5.8443
Sodium hydroxide	NaOH	39.9972	1	3.9997
Sodium oxide	Na ₂ O	61.9790	1/2	3.0990
Sodium sulfide	Na ₂ S	78.0436	1/2	3.9022
Succinic acid	H ₂ C ₄ H ₄ O ₄	118.0900	1/2	5.9045
Sulfuric acid	H ₂ SO ₄	98.0775	1/2	4.9039
Tartaric acid	C ₄ H ₆ O ₆	150.0888	1/2	7.5044
Zinc	Zn	65.37	1/2	3.269
Zinc sulfate hydrate	ZnSO ₄ · 7H ₂ O	287.5390	1/2	14.3769