## TABLE 2-122 Solubilities of Inorganic Compounds in Water at Various Temperatures*

This table shows the grams of anhydrous substance that are soluble in 100 g of water at the temperature in degrees Celsius as indicated; when the name is followed by †, the value is expressed in grams of substance in 100 $cm^3$ of saturated solution. Solid phase gives the hydrated form in equilibrium with the saturated solution.

| | Substance | Formula | Solid phase | 0 °C | 10 °C | 20 °C | 30 °C | 40 °C | 50 °C | 60 °C | 70 °C | 80 °C | 90 °C | 100 °C | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Aluminum chloride | $AlCl_3$ | $6H_2O$ | | | $69.86^{15\circ}$ | | | | | | | | | 1 |
| 2 | sulfate | $Al_2(SO_4)_3$ | $18H_2O$ | 31.2 | 33.5 | 36.4 | 40.4 | 46.1 | 52.2 | 59.2 | 66.1 | 73.0 | 80.8 | 89.0 | 2 |
| 3 | Ammonium aluminum sulfate | $(NH_4)_2Al_2(SO_4)_4$ | $24H_2O$ | 2.1 | 4.99 | 7.74 | 10.94 | 14.88 | 20.10 | 26.70 | | | | $109.7^{96\circ}$ | 3 |
| 4 | bicarbonate | $NH_4HCO_3$ | | 11.9 | 15.8 | 21 | 27 | | | | | | | | 4 |
| 5 | bromide | $NH_4Br$ | | 60.6 | 68 | 75.5 | 83.2 | 91.1 | 99.2 | 107.8 | 116.8 | 126 | 135.6 | 145.6 | 5 |
| 6 | chloride | $NH_4Cl$ | | 29.4 | 33.3 | 37.2 | 41.4 | 45.8 | 50.4 | 55.2 | 60.2 | 65.6 | 71.3 | 77.3 | 6 |
| 7 | chloroplatinate | $(NH_4)_2PtCl_6$ | | | 0.7 | | | | | | | | | 1.25 | 7 |
| 8 | chromate | $(NH_4)_2CrO_4$ | | | | | 40.4 | | | | | | | | 8 |
| 9 | chromium sulfate | $(NH_4)_2Cr_2(SO_4)_4$ | $24H_2O$ | | | $10.78^{25\circ}$ | | | | | | | | | 9 |
| 10 | dichromate | $(NH_4)_2Cr_2O_7$ | | | | | 47.17 | | | | | | | | 10 |
| 11 | dihydrogen phosphite | $NH_4H_2PO_3$ | | 171 | | $190^{14.5\circ}$ | $260^{31\circ}$ | | | | | | | | 11 |
| 12 | hydrogen phosphate | $(NH_4)_2HPO_4$ | | | | $131^{15}$ | | | | | | | | | 12 |
| 13 | iodide | $NH_4I$ | | 154.2 | 163.2 | 172.3 | 181.4 | 190.5 | 199.6 | 208.9 | 218.7 | 228.8 | | 250.3 | 13 |
| 14 | magnesium phosphate | $NH_4MgPO_4$ | $6H_2O$ | 0.023 | | 0.052 | | 0.036 | 0.030 | 0.040 | 0.016 | 0.019 | | | 14 |
| 15 | manganese phosphate | $NH_4MnPO_4$ | $7H_2O$ | | | 0 | | 0 | | 0 | 0.005 | 0.007 | | | 15 |
| 16 | nitrate | $NH_4NO_3$ | | 118.3 | | 192 | 241.8 | 297.0 | 344.0 | 421.0 | 499.0 | 580.0 | 740.0 | 871.0 | 16 |
| 17 | oxalate | $(NH_4)_2C_2O_4$ | $1H_2O$ | 2.2 | 3.1 | 4.4 | 5.9 | 8.0 | 10.3 | | | | | | 17 |
| 18 | perchlorate† | $NH_4ClO_4$† | | 11.56 | | 20.85 | | 30.58 | | 39.05 | | 48.19 | | 57.01 | 18 |
| 19 | persulfate | $(NH_4)_2S_2O_8$ | | 58.2 | | | | | | | | | | | 19 |
| 20 | sulfate | $(NH_4)_2SO_4$ | | 70.6 | 73.0 | 75.4 | 78.0 | 81.0 | | 88.0 | | 95.3 | | 103.3 | 20 |
| 21 | thiocyanate | $NH_4CNS$ | | 119.8 | 144 | 170 | 207.7 | | | | | | | | 21 |
| 22 | vanadate (meta) | $NH_4VO_3$ | | | | 0.48 | 0.84 | 1.32 | 1.78 | | 3.05 | | | | 22 |
| 23 | Antimonious fluoride | $SbF_3$ | | 384.7 | | 444.7 | 563.6 | | | | | | | | 23 |
| 24 | sulfide | $Sb_2S_3$ | | | | $0.000175^{18\circ}$ | | | | | | | | | 24 |
| 25 | Arsenic oxide | $As_2O_5$ | | 59.5 | 62.1 | 65.8 | 69.5 | 71.2 | | 73.0 | | 75.1 | | 76.7 | 25 |
| 26 | Arsenious sulfide | $As_2S_3$ | | $5.17 \times 10^{-5}$ at 18° | | | | | | | | | | | 26 |
| 27 | Barium acetate | $Ba(C_2H_3O_2)_2$ | $3H_2O$ | 59 | 63 | 71 | | | | | | | | | 27 |
| 28 | acetate | $Ba(C_2H_3O_2)_2$ | $1H_2O$ | | | | 75 | 79 | 77 | 74 | 74 | | | 75 | 28 |
| 29 | carbonate | $BaCO_3$ | | | $0.0016^{8\circ}$ | $0.0022^{18\circ}$ | 0.0024 at 24.2° | | | | | | | | 29 |
| 30 | chlorate | $Ba(ClO_3)_2$ | $1H_2O$ | 20.34 | 26.95 | 33.80 | 41.70 | 49.61 | | 66.81 | | 84.84 | | 104.9 | 30 |
| 31 | chloride | $BaCl_2$ | $2H_2O$ | 31.6 | 33.3 | 35.7 | 38.2 | 40.7 | 43.6 | 46.4 | 49.4 | 52.4 | | 58.8 | 31 |
| 32 | chromate | $BaCrO_4$ | | 0.0002 | 0.00028 | 0.00037 | 0.00046 | | | | | | | | 32 |
| 33 | hydroxide | $Ba(OH)_2$ | $8H_2O$ | 1.67 | 2.48 | 3.89 | 5.59 | 8.22 | 13.12 | 20.94 | | 101.4 | | | 33 |
| 34 | iodide | $BaI_2$ | $6H_2O$ | 170.2 | 185.7 | 203.1 | 219.6 | | | | | | | | 34 |
| 35 | iodide | $BaI_2$ | $2H_2O$ | | | | | 231.9 | | 247.3 | | 261.0 | | 271.7 | 35 |
| 36 | nitrate | $Ba(NO_3)_2$ | | 5.0 | 7.0 | 9.2 | 11.6 | 14.2 | 17.1 | 20.3 | | 27.0 | | 34.2 | 36 |
| 37 | nitrite | $Ba(NO_2)_2$ | $1H_2O$ | | | 67.5 | | | | | | 205.8 | | 300 | 37 |
| 38 | oxalate | $BaC_2O_4$ | | | $0.0016^{8\circ}$ | $0.0022^{18\circ}$ | 0.0024 at 24.2° | | | | | | | | 38 |
| 39 | perchlorate | $Ba(ClO_4)_2$ | $3H_2O$ | 205.8 | | 289.1 | | 358.7 | 426.3 | | 495.2 | | 562.3 | | 39 |
| 40 | sulfate | $BaSO_4$ | | $1.15 \times 10^{-4}$ | $2.0 \times 10^{-4}$ | $2.4 \times 10^{-4}$ | $2.85 \times 10^{-4}$ | | | | | | | | 40 |
| 41 | Beryllium sulfate | $BeSO_4$ | $6H_2O$ | | | | 52 | | 60.67 | | | | | | 41 |
| 42 | sulfate | $BeSO_4$ | $4H_2O$ | | | | 43.78 | 46.74 | | | 62 | | 83 | 100 | 42 |
| 43 | sulfate | $BeSO_4$ | $2H_2O$ | | | | | | | | | 84.76 | 98 | 110 | 43 |
| 44 | Boric acid | $H_3BO_3$ | | 2.66 | 3.57 | 5.04 | 6.60 | 8.72 | 11.54 | 14.81 | 16.73 | 23.75 | 30.38 | 40.25 | 44 |
| 45 | Boron oxide | $B_2O_3$ | | 1.1 | 1.5 | 2.2 | | 4.0 | | 6.2 | | 9.5 | | 15.7 | 45 |
| 46 | Bromine | $Br_2$ | | 4.22 | 3.4 | 3.20 | 3.13 | | | | | | | | 46 |
| 47 | Cadmium chloride | $CdCl_2$ | $4H_2O$ | 97.59 | 125.1 | | | | | | | | | | 47 |
| 48 | chloride | $CdCl_2$ | $2½H_2O$ | 90.01 | | | 132.1 | | | | | | | | 48 |
| 49 | chloride | $CdCl_2$ | $1H_2O$ | | 135.1 | 134.5 | | 135.3 | | 136.5 | | 140.4 | | 147.0 | 49 |
| 50 | cyanide | $Cd(CN)_2$ | | | | $1.7^{15\circ}$ | | | | | | | | | 50 |
| 51 | hydroxide | $Cd(OH)_2$ | | | | | $2.6 \times 10^{-4}$ at 25° | | | | | | | | 51 |
| 52 | sulfate | $CdSO_4$ | | 76.48 | 76.00 | 76.60 | | 78.54 | | 83.68 | | | 63.13 | 60.77 | 52 |
| 53 | Calcium acetate | $Ca(C_2H_3O_2)_2$ | $2H_2O$ | 37.4 | 36.0 | 34.7 | 33.8 | 33.2 | | 32.7 | | 33.5 | | | 53 |
| 54 | acetate | $Ca(C_2H_3O_2)_2$ | $1H_2O$ | | | | | | | | | | 31.1 | 29.7 | 54 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Calcium bicarbonate | $Ca(HCO_3)_2$ | | 16.15 | | 16.60 | | 17.05 | | 17.50 | | 17.95 | | 18.40 | 1 |
| 2 | chloride | $CaCl_2$ | $6H_2O$ | 59.5 | 65.0 | 74.5 | 102 | | | | | | | | 2 |
| 3 | chloride | $CaCl_2$ | $2H_2O$ | | | | | | | 136.8 | 141.7 | 147.0 | 152.7 | 159 | 3 |
| 4 | fluoride | $CaF_2$ | | | | $0.0016^{18°}$ | $0.0017^{26°}$ | | | | | | | | 4 |
| 5 | hydroxide | $Ca(OH)_2$ | | 0.185 | 0.176 | 0.165 | 0.153 | 0.141 | 0.128 | 0.116 | 0.106 | 0.094 | 0.085 | 0.077 | 5 |
| 6 | nitrate | $Ca(NO_3)_2$ | $4H_2O$ | 102.0 | 115.3 | 129.3 | 152.6 | 195.9 | | | | | | | 6 |
| 7 | nitrate | $Ca(NO_3)_2$ | $3H_2O$ | | | | | 237.5 | 281.5 | | | | | | 7 |
| 8 | nitrate | $Ca(NO_3)_2$ | | | | | | | | | | 358.7 | | 363.6 | 8 |
| 9 | nitrite | $Ca(NO_2)_2$ | $4H_2O$ | 62.07 | | 76.68 | | | | | | | | | 9 |
| 10 | nitrite | $Ca(NO_2)_2$ | $2H_2O$ | | | | | | | 132.6 | 151.9 | | 244.8 | | 10 |
| 11 | oxalate | $CaC_2O_4$ | | | $6.7 \times 10^{-4}$ at 13° | $6.8 \times 10^{-4}$ at 25° | $9.5 \times 10^{-4}$ at 50° | $14 \times 10^{-4}$ at 95° | | | | | | | 11 |
| 12 | sulfate | $CaSO_4$ | $2H_2O$ | 0.1759 | 0.1928 | | 0.2090 | 0.2097 | | 0.2047 | 0.1966 | | | 0.1619 | 12 |
| 13 | Carbon dioxide, 760 mm ‡ | $CO_2$ | | 0.3346 | 0.2318 | 0.1688 | 0.1257 | 0.0973 | 0.0761 | 0.0576 | | | | 0 | 13 |
| 14 | monoxide, 760 mm ‡ | CO | | 0.0044 | 0.0035 | 0.0028 | 0.0024 | 0.0021 | 0.0018 | 0.0015 | 0.0013 | 0.0010 | 0.0006 | 0 | 14 |
| 15 | Cesium chloride | CsCl | | 161.4 | 174.7 | 186.5 | 197.3 | 208.0 | 218.5 | 229.7 | 239.5 | 250.0 | 260.1 | 270.5 | 15 |
| 16 | nitrate | $CsNO_3$ | | 9.33 | 14.9 | 23.0 | 33.9 | 47.2 | 64.4 | 83.8 | 107.0 | 134.0 | 163.0 | 197.0 | 16 |
| 17 | sulfate | $Cs_2SO_4$ | | 167.1 | 173.1 | 178.7 | 184.1 | 189.9 | 194.9 | 199.9 | 205.0 | 210.3 | 214.9 | 220.3 | 17 |
| 18 | Chlorine, 760 mm ‡ | $Cl_2$ | | 1.46 | 0.980 | 0.716 | 0.562 | 0.451 | 0.386 | 0.324 | 0.274 | 0.219 | 0.125 | 0 | 18 |
| 19 | Chromic anhydride | $CrO_3$ | | 164.9 | | | | 174.0 | 182.1 | | | | 217.5 | 206.8 | 19 |
| 20 | Cuprio chloride | $CuCl_2$ | $2H_2O$ | 70.7 | 73.76 | 77.0 | 80.34 | 83.8 | 87.44 | 91.2 | | 99.2 | | 107.9 | 20 |
| 21 | nitrate | $Cu(NO_3)_2$ | $6H_2O$ | 81.8 | 95.28 | 125.1 | | | | | | | | | 21 |
| 22 | nitrate | $Cu(NO_3)_2$ | $3H_2O$ | | | | | 159.8 | | 178.8 | | 207.8 | | | 22 |
| 23 | sulfate | $CuSO_4$ | $5H_2O$ | 14.3 | 17.4 | 20.7 | 25 | 28.5 | 33.3 | 40 | | 55 | | 75.4 | 23 |
| 24 | sulfide | CuS | | | | $3.3 \times 10^{-5}$ at 18° | | | | | | | | | 24 |
| 25 | Cuprous chloride | CuCl | | | | $1.52^{25°}$ | | | | | | | | | 25 |
| 26 | Ferric chloride | $FeCl_3$ | | 74.4 | 81.9 | 91.8 | | | 315.1 | | | 525.8 | | 535.7 | 26 |
| 27 | Ferrous chloride | $FeCl_2$ | $4H_2O$ | | 64.5 | | 73.0 | 77.3 | 82.5 | 88.7 | | 100 | | | 27 |
| 28 | chloride | $FeCl_2$ | | | | | | | | | | | 105.3 | 105.8 | 28 |
| 29 | nitrate | $Fe(NO_3)_2$ | $6H_2O$ | 71.02 | | 83.8 | | | | 165.6 | | | | | 29 |
| 30 | sulfate | $FeSO_4$ | $7H_2O$ | 15.65 | 20.51 | 26.5 | 32.9 | 40.2 | 48.6 | | | | | | 30 |
| 31 | sulfate | $FeSO_4$ | $1H_2O$ | | | | | | | | 50.9 | 43.6 | 37.3 | | 31 |
| 32 | Hydrobromic acid, 760 mm | HBr | | 221.2 | 210.3 | 198 | | | 171.5 | | | | | 130 | 32 |
| 33 | Hydrochloric acid, 760 mm | HCl | | 82.3 | | | 67.3 | 63.3 | 59.6 | 56.1 | | | | | 33 |
| 34 | Iodine | $I_2$ | | | | 0.029 | 0.04 | 0.056 | 0.078 | | | | | | 34 |
| 35 | Lead acetate | $Pb(C_2H_3O_2)_2$ | $3H_2O$ | | | | $55.04^{25°}$ | | | | | | | | 35 |
| 36 | bromide | $PbBr_2$ | | 0.4554 | | 0.85 | 1.15 | 1.53 | 1.94 | 2.36 | | 3.34 | | 4.75 | 36 |
| 37 | carbonate | $PbCO_3$ | | | | 0.00011 | | | | | | | | | 37 |
| 38 | chloride | $PbCl_2$ | | 0.6728 | | 0.99 | 1.20 | 1.45 | 1.70 | 1.98 | | 2.62 | | 3.34 | 38 |
| 39 | chromate | $PbCrO_4$ | | | | $7 \times 10^{-6}$ | | | | | | | | | 39 |
| 40 | fluoride | $PbF_2$ | | | 0.060 | 0.064 | 0.068 | | | | | | | | 40 |
| 41 | nitrate | $Pb(NO_3)_2$ | | 38.8 | 48.3 | 56.5 | 66 | 75 | 85 | 95 | | 115 | | 38.8 | 41 |
| 42 | sulfate | $PbSO_4$ | | 0.0028 | 0.0035 | 0.0041 | 0.0049 | 0.0056 | | | | | | | 42 |
| 43 | Magnesium bromide | $MgBr_2$ | $6H_2O$ | 91.0 | 94.5 | 96.5 | 99.2 | 101.6 | 104.1 | 107.5 | | 113.7 | | 120.2 | 43 |
| 44 | chloride | $MgCl_2$ | $6H_2O$ | 52.8 | 53.5 | 54.5 | | 57.5 | | 61.0 | | 66.0 | | 73.0 | 44 |
| 45 | hydroxide | $Mg(OH)_2$ | | | | $0.0009^{18°}$ | | | | | | | | | 45 |
| 46 | nitrate | $Mg(NO_3)_2$ | $6H_2O$ | 66.55 | | | | 84.74 | | | | | 137.0 | | 46 |
| 47 | sulfate | $MgSO_4$ | $7H_2O$ | | 30.9 | 35.5 | 40.8 | 45.6 | | | | | | | 47 |
| 48 | sulfate | $MgSO_4$ | $6H_2O$ | 40.8 | 42.2 | 44.5 | 45.3 | | 50.4 | 53.5 | 59.5 | 64.2 | 69.0 | 74.0 | 48 |
| 49 | sulfate | $MgSO_4$ | $1H_2O$ | | | | | | | | | 62.9 | | 68.3 | 49 |
| 50 | Manganous sulfate | $MnSO_4$ | $7H_2O$ | 53.23 | 60.01 | | | | | | | | | | 50 |
| 51 | sulfate | $MnSO_4$ | $5H_2O$ | | 59.5 | 62.9 | 67.76 | | | | | | | | 51 |
| 52 | sulfate | $MnSO_4$ | $4H_2O$ | | | 64.5 | 66.44 | 68.8 | 72.6 | | | | | | 52 |
| 53 | sulfate | $MnSO_4$ | $1H_2O$ | | | | | | 58.17 | 55.0 | 52.0 | 48.0 | 42.5 | 34.0 | 53 |
| 54 | Mercurous chloride | HgCl | | 0.00014 | | 0.0002 | | 0.0007 | | | | | | | 54 |
| 55 | Molybdic oxide | $MoO_3$ | $2H_2O$ | | | 0.138 | 0.264 | 0.476 | 0.687 | 1.206 | 2.055 | 2.106 | | | 55 |
| 56 | Nickel chloride | $NiCl_2$ | $6H_2O$ | 53.9 | 59.5 | 64.2 | 68.9 | 73.3 | 78.3 | 82.2 | 85.2 | | | 87.6 | 56 |
| 57 | nitrate | $Ni(NO_3)_2$ | $6H_2O$ | 79.58 | | 96.31 | | 122.2 | | | | | | | 57 |
| 58 | nitrate | $Ni(NO_3)_2$ | $3H_2O$ | | | | | | | 163.1 | 169.1 | | 235.1 | | 58 |
| 59 | sulfate | $NiSO_4$ | $7H_2O$ | 27.22 | 32 | | 42.46 | | | | | | | | 59 |
| 60 | sulfate | $NiSO_4$ | $6H_2O$ | | | | | | 50.15 | 54.80 | 59.44 | 63.17 | | 76.7 | 60 |
| 61 | Nitric oxide, 760 mm | NO | | 0.00984 | 0.00757 | 0.00618 | 0.00517 | 0.00440 | 0.00376 | 0.00324 | 0.00267 | 0.00199 | 0.00114 | 0 | 61 |
| 62 | Nitrous oxide | $N_2O$ | | | 0.1705 | 0.1211 | | | | | | | | | 62 |

*By N. A. Lange; abridged from "Table of Solubilities of Inorganic Compounds in Water at Various Temperatures" in *Lange's Handbook of Chemistry,* 10th ed., McGraw-Hill, New York, 1961 (except for NaCl, which is from *CRC Handbook of Chemistry and Physics,* 86th ed., CRC Press, 2005). For tables of the solubility of gases in water at various temperatures, Atack (*Handbook of Chemical Data,* Reinhold, New York, 1957) gives values at closer temperature intervals, usually 1 or 5 °C, than are tabulated here. For materials marked by ‡, additional data are given in tables subsequent to this one. For the solubility of various hydrocarbons in water at high pressures see *J. Chem. Eng. Data,* **4,** 212 (1959).

**TABLE 2-122 Solubilities of Inorganic Compounds in Water at Various Temperatures** (*Continued*)

| | Substance | Formula | Solid phase | 0 °C | 10 °C | 20 °C | 30 °C | 40 °C | 50 °C | 60 °C | 70 °C | 80 °C | 90 °C | 100 °C | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Potassium acetate | $KC_2H_3O_2$ | $1\frac{1}{2}H_2O$ | 216.7 | 233.9 | 255.6 | 283.8 | 323.3 | | | | | | | 1 |
| 2 | acetate | $KC_2H_3O_2$ | $\frac{1}{2}H_2O$ | | | | | | 337.3 | 350 | 364.8 | 380.1 | 396.3 | | 2 |
| 3 | alum | $K_2SO_4{\cdot}Al_2(SO_4)_3$ | $24H_2O$ | 3.0 | 4.0 | 5.9 | 8.39 | 11.70 | 17.00 | 24.75 | 40.0 | 71.0 | 109.0 | | 3 |
| 4 | bicarbonate | $KHCO_3$ | | 22.4 | 27.7 | 33.2 | 39.1 | 45.4 | | 60.0 | | | | | 4 |
| 5 | bisulfate | $KHSO_4$ | | 36.3 | | 51.4 | | 67.3 | | | | | | 121.6 | 5 |
| 6 | bitartrate | $KHC_4H_4O_6$ | | 0.32 | 0.40 | 0.53 | 0.90 | 1.32 | 1.83 | 2.46 | | 4.6 | | 6.95 | 6 |
| 7 | carbonate | $K_2CO_3$ | $2H_2O$ | 105.5 | 108 | 110.5 | 113.7 | 116.9 | 121.2 | 126.8 | 133.1 | 139.8 | 147.5 | 155.7 | 7 |
| 8 | chlorate | $KClO_3$ | | 3.3 | 5 | 7.4 | 10.5 | 14 | 19.3 | 24.5 | | 38.5 | | 57 | 8 |
| 9 | chloride | KCl | | 27.6 | 31.0 | 34.0 | 37.0 | 40.0 | 42.6 | 45.5 | 48.3 | 51.1 | 54.0 | 56.7 | 9 |
| 10 | chromate | $K_2CrO_4$ | | 58.2 | 60.0 | 61.7 | 63.4 | 65.2 | 66.8 | 68.6 | 70.4 | 72.1 | 73.9 | 75.6 | 10 |
| 11 | dichromate | $K_2Cr_2O_7$ | | 5 | 7 | 12 | 20 | 26 | 34 | 43 | 52 | 61 | 70 | 80 | 11 |
| 12 | ferricyanide | $K_3Fe(CN)_6$ | | 31 | 36 | 43 | 50 | 60 | | 66 | | | | 82.6[104] | 12 |
| 13 | hydroxide | KOH | $2H_2O$ | 97 | 103 | 112 | 126 | | | | | | | | 13 |
| 14 | hydroxide | KOH | $1H_2O$ | | | | | | 140 | | | | | 178 | 14 |
| 15 | nitrate | $KNO_3$ | | 13.3 | 20.9 | 31.6 | 45.8 | 63.9 | 85.5 | 110.0 | 138 | 169 | 202 | 246 | 15 |
| 16 | nitrite | $KNO_2$ | | 278.8 | | 298.4 | | 334.9 | | | | | | 412.8 | 16 |
| 17 | perchlorate | $KClO_4$ | | 0.75 | 1.05 | 1.80 | 2.6 | 4.4 | 6.5 | 9 | 11.8 | 14.8 | 18 | 21.8 | 17 |
| 18 | permanganate | $KMnO_4$ | | 2.83 | 4.4 | 6.4 | 9.0 | 12.56 | 16.89 | 22.2 | | | | | 18 |
| 19 | persulfate† | $K_2S_2O_8$† | † | 1.62 | 2.60 | 4.49 | 7.19 | 9.89 | | | | | | | 19 |
| 20 | sulfate | $K_2SO_4$ | | 7.35 | 9.22 | 11.11 | 12.97 | 14.76 | 16.50 | 18.17 | 19.75 | 21.4 | 22.8 | 24.1 | 20 |
| 21 | thiocyanate | KCNS | | 177.0 | | 217.5 | | | | | | | | | 21 |
| 22 | Silver cyanide | AgCN | | | | $2.2 \times 10^{-5}$ | | | | | | | | | 22 |
| 23 | nitrate | $AgNO_3$ | | 122 | 170 | 222 | 300 | 376 | 455 | 525 | | 669 | | 952 | 23 |
| 24 | sulfate | $Ag_2SO_4$ | | 0.573 | 0.695 | 0.796 | 0.888 | 0.979 | 1.08 | 1.15 | 1.22 | 1.30 | 1.36 | 1.41 | 24 |
| 25 | Sodium acetate | $NaC_2H_3O_2$ | $3H_2O$ | 36.3 | 40.8 | 46.5 | 54.5 | 65.5 | 83 | 139 | | | | | 25 |
| 26 | acetate | $NaC_2H_3O_2$ | | 119 | 121 | 123.5 | 126 | 129.5 | 134 | 139.5 | 146 | 153 | 161 | 170 | 26 |
| 27 | bicarbonate | $NaHCO_3$ | | 6.9 | 8.15 | 9.6 | 11.1 | 12.7 | 14.45 | 16.4 | | | | | 27 |
| 28 | carbonate | $Na_2CO_3$ | $10H_2O$ | 7 | 12.5 | 21.5 | 38.8 | | | | | | | | 28 |
| 29 | carbonate | $Na_2CO_3$ | $1H_2O$ | | | | 50.5 | 48.5 | | 46.4 | | 45.8 | | 45.5 | 29 |
| 30 | chlorate | $NaClO_8$ | | 79 | 89 | 101 | 113 | 126 | 140 | 155 | 172 | 189 | | 230 | 30 |
| 31 | chloride | NaCl | | 35.65 | 35.72 | 35.89 | 36.09 | 36.37 | 36.69 | 37.04 | 37.46 | 37.93 | 38.47 | 38.99 | 31 |
| 32 | chromate | $Na_2CrO_4$ | $10H_2O$ | 31.70 | 50.17 | 88.7 | | | | | | | | | 32 |
| 33 | chromate | $Na_2CrO_4$ | $4H_2O$ | | | | 88.7 | 95.96 | 104 | 114.6 | | | | | 33 |
| 34 | chromate | $Na_2CrO_4$ | | | | | | | | | 123.0 | 124.8 | | 125.9 | 34 |
| 35 | dichromate | $Na_2Cr_2O_7$ | $2H_2O$ | 163.0 | | 177.8 | | | 244.8 | | 316.7 | 376.2 | | | 35 |
| 36 | dichromate | $Na_2Cr_2O_7$ | | | | | | | | | | | | 426.3 | 36 |
| 37 | dihydrogen phosphate | $NaH_2PO_4$ | $2H_2O$ | 57.9 | 69.9 | 85.2 | 106.5 | 138.2 | | | | | | | 37 |
| 38 | dihydrogen phosphate | $NaH_2PO_4$ | $1H_2O$ | | | | | | 158.6 | | | | | | 38 |
| 39 | dihydrogen phosphate | $NaH_2PO_4$ | | | | | | | | 179.3 | 190.3 | 207.3 | 225.3 | 246.6 | 39 |
| 40 | hydrogen arsenate | $Na_2HAsO_4$ | $12H_2O$ | 7.3 | 15.5 | 26.5 | 37 | 47 | | 65 | | 85 | | | 40 |
| 41 | hydrogen phosphate | $Na_2HPO_4$ | $12H_2O$ | 1.67 | 3.6 | 7.7 | 20.8 | | | | | | | | 41 |
| 42 | hydrogen phosphate | $Na_2HPO_4$ | $7H_2O$ | | | | | 51.8 | | | | | | | 42 |
| 43 | hydrogen phosphate | $Na_2HPO_4$ | $2H_2O$ | | | | | | 80.2 | 82.9 | 88.1 | 92.4 | 102.9 | | 43 |
| 44 | hydrogen phosphate | $Na_2HPO_4$ | | | | | | | | | | | | 102.2 | 44 |
| 45 | hydroxide | NaOH | $4H_2O$ | 42 | | | | | | | | | | | 45 |
| 46 | hydroxide | NaOH | $3\frac{1}{2}H_2O$ | | 51.5 | | | | | | | | | | 46 |
| 47 | hydroxide | NaOH | $1H_2O$ | | | 109 | 119 | 129 | 145 | 174 | | | | | 47 |
| 48 | hydroxide | NaOH | | | | | | | | | | | 313 | 347 | 48 |
| 49 | nitrate | $NaNO_3$ | | 73 | 80 | 88 | 96 | 104 | 114 | 124 | | 148 | | 180 | 49 |
| 50 | nitrite | $NaNO_2$ | | 72.1 | 78.0 | 84.5 | 91.6 | 98.4 | 104.1 | | | 132.6 | | 163.2 | 50 |
| 51 | oxalate | $Na_2C_2O_4$ | | | | 3.7 | | | | | | | | 6.33 | 51 |
| 52 | phosphate, tri- | $Na_3PO_4$ | $12H_2O$ | 1.5 | 4.1 | 11 | 20 | 31 | 43 | 55 | | 81 | | 108 | 52 |
| 53 | pyrophosphate | $Na_4P_2O_7$ | $10H_2O$ | 3.16 | 3.95 | 6.23 | 9.95 | 13.50 | 17.45 | 21.83 | | 30.04 | | 40.26 | 53 |
| 54 | sulfate | $Na_2SO_4$ | $10H_2O$ | 5.0 | 9.0 | 19.4 | 40.8 | | | | | | | | 54 |
| 55 | sulfate | $Na_2SO_4$ | $7H_2O$ | 19.5 | 30 | 44 | | | | | | | | | 55 |
| 56 | sulfate | $Na_2SO_4$ | | | | | | 48.8 | 46.7 | 45.3 | | 43.7 | | 42.5 | 56 |
| 57 | sulfide | $Na_2S$ | $9H_2O$ | | 15.42 | 18.8 | 22.5 | 28.5 | | | | | | | 57 |
| 58 | sulfide | $Na_2S$ | $5\frac{1}{2}H_2O$ | | | | | | 39.82 | 42.69 | 45.73 | 51.40 | 59.23 | | 58 |
| 59 | sulfide | $Na_2S$ | $6H_2O$ | | | | | | 36.4 | 39.1 | 43.31 | 49.14 | 57.28 | | 59 |
| 60 | sulfite | $Na_2SO_3$ | $7H_2O$ | 13.9 | 20 | 26.9 | 36 | | | | | | | | 60 |
| 61 | sulfite | $Na_2SO_3$ | | | | | | 28 | 28.2 | 28.8 | | 28.3 | | | 61 |
| 62 | tetraborate | $Na_2B_4O_7$ | $10H_2O$ | 1.3 | 1.6 | 2.7 | 3.9 | | 10.5 | 20.3 | | | | | 62 |
| 63 | tetraborate | $Na_2B_4O_7$ | $5H_2O$ | | | | | | | | 24.4 | 31.5 | 41 | 52.5 | 63 |
| 64 | vanadate (meta) | $NaVO_8$ | $2H_2O$ | | | 15.3[25°] | | 30.2 | | 68.4 | | | | | 64 |

**TABLE 2-122 Solubilities of Inorganic Compounds in Water at Various Temperatures** (*Concluded*)

| | Substance | Formula | Solid phase | 0 °C | 10 °C | 20 °C | 30 °C | 40 °C | 50 °C | 60 °C | 70 °C | 80 °C | 90 °C | 100 °C | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Sodium vanadate (meta) | $NaVO_3$ | | | | $21.10^{25°}$ | | 26.23 | | 32.97 | 36.9 | $38.8^{75°}$ | | | 1 |
| 2 | Stannous chloride | $SnCl_2$ | | 83.9 | | $269.8^{15°}$ | | | | | | | | | 2 |
| 3 | sulfate | $SnSO_4$ | | | | 19 | | | | | | | | 18 | 3 |
| 4 | Strontium acetate | $Sr(C_2H_3O_2)_2$ | $4H_2O$ | 36.9 | 43.61 | | | | | | | | | | 4 |
| 5 | acetate | $Sr(C_2H_3O_2)_2$ | $½H_2O$ | | 42.95 | 41.6 | 39.5 | | 37.35 | | 36.24 | 36.10 | | 36.4 | 5 |
| 6 | chloride | $SrCl_2$ | $6H_2O$ | 43.5 | 47.7 | 52.9 | 58.7 | 65.3 | 72.4 | 81.8 | | | | | 6 |
| 7 | chloride | $SrCl_2$ | $2H_2O$ | | | | | | | | 85.9 | 90.5 | | 100.8 | 7 |
| 8 | nitrate | $Sr(NO_3)_2$ | $1H_2O$ | 52.7 | | 64.0 | | | 83.8 | 97.2 | | | 130.4 | 139 | 8 |
| 9 | nitrate | $Sr(NO_3)_2$ | $4H_2O$ | 40.1 | | 70.5 | | | | | | | | | 9 |
| 10 | nitrate | $Sr(NO_3)_2$ | | | | | 88.6 | 90.1 | | 93.8 | 96 | 98 | 100 | | 10 |
| 11 | sulfate | $SrSO_4$ | | 0.0113 | | 0.0114 | 0.0114 | | | | | | | | 11 |
| 12 | Sulfur dioxide, 760 mm† | $SO_2$ | | 22.83 | 16.21 | 11.29 | 7.81 | 5.41 | 4.5 | | | | | | 12 |
| 13 | Thallium sulfate | $Tl_2SO_4$ | | 2.70 | 3.70 | 4.87 | 6.16 | | 9.21 | 10.92 | 12.74 | 14.61 | 16.53 | 18.45 | 13 |
| 14 | Thorium sulfate | $Th(SO_4)_2$ | $9H_2O$ | 0.74 | 0.98 | 1.38 | 1.995 | 2.998 | 5.22 | | | | | | 14 |
| 15 | sulfate | $Th(SO_4)_2$ | $8H_2O$ | 1.0 | 1.25 | 1.62 | | | | | | | | | 15 |
| 16 | sulfate | $Th(SO_4)_2$ | $6H_2O$ | 1.50 | | 1.90 | 2.45 | | | 6.64 | | | | | 16 |
| 17 | sulfate | $Th(SO_4)_2$ | $4H_2O$ | | | | | 4.04 | 2.54 | 1.63 | 1.09 | | | | 17 |
| 18 | Zinc chlorate | $ZnClO_3$ | $6H_2O$ | 145.0 | 152.5 | | | | | | | | | | 18 |
| 19 | chlorate | $ZnClO_3$ | $4H_2O$ | | | 200.3 | 209.2 | 223.2 | 273.1 | | | | | | 19 |
| 20 | nitrate | $Zn(NO_3)_2$ | $6H_2O$ | 94.78 | | 118.3 | | | | | | | | | 20 |
| 21 | nitrate | $Zn(NO_3)_2$ | $3H_2O$ | | | | | 206.9 | | | | | | | 21 |
| 22 | sulfate | $ZnSO_4$ | $7H_2O$ | 41.9 | 47 | 54.4 | | | | | | | | | 22 |
| 23 | sulfate | $ZnSO_4$ | $6H_2O$ | | | | | 70.1 | 76.8 | | | | | | 23 |
| 24 | sulfate | $ZnSO_4$ | $1H_2O$ | | | | | | | | | 86.6 | 83.7 | 80.8 | 24 |