# APPENDIX I

# Heats of Solution and Dilution

**Table I.1 Integral Heats of Solution and Dilution at 25°C**

| Formula | Description | State | $-\Delta\hat{H}_f^\circ$ (kJ/g mol) | $-\Delta\hat{H}_{soln}^\circ$ (kJ/g mol) | $-\Delta\hat{H}_{dil}^\circ$ (kJ/g mol) |
|---|---|---|---|---|---|
| NaOH | crystalline II | | 426.726 | | |
| | in 3 $H_2O$ | aq | 455.612 | 28.869 | 28.869 |
| | 4 $H_2O$ | aq | 461.156 | 34.434 | 5.564 |
| | 5 $H_2O$ | aq | 464.486 | 37.739 | 3.305 |
| | 10 $H_2O$ | aq | 469.227 | 42.509 | 4.769 |
| | 20 $H_2O$ | aq | 469.591 | 42.844 | .334 |
| | 30 $H_2O$ | aq | 469.457 | 42.718 | .125 |
| | 40 $H_2O$ | aq | 469.340 | 42.593 | .125 |
| | 50 $H_2O$ | aq | 469.252 | 42.509 | .083 |
| | 100 $H_2O$ | aq | 469.059 | 42.342 | .167 |
| | 200 $H_2O$ | aq | 469.026 | 42.258 | .083 |
| | 300 $H_2O$ | aq | 469.047 | 42.300 | .041 |
| | 500 $H_2O$ | aq | 469.097 | 42.383 | .083 |
| | 1,000 $H_2O$ | aq | 469.189 | 42.467 | .083 |
| | 2,000 $H_2O$ | aq | 469.285 | 42.551 | .083 |
| | 10,000 $H_2O$ | aq | 469.448 | 42.718 | .041 |
| | 50,000 $H_2O$ | aq | 469.528 | 42.802 | .083 |
| | ∞ $H_2O$ | aq | 469.595 | 42.886 | .083 |
| $H_2SO_4$ | | liq | 811.319 | | |
| | in 0.5 $H_2O$ | aq | 827.051 | 15.731 | 15.731 |
| | 1.0 $H_2O$ | aq | 839.394 | 28.074 | 12.343 |
| | 1.5 $H_2O$ | aq | 848.222 | 36.902 | 8.823 |
| | 2 $H_2O$ | aq | 853.243 | 41.923 | 5.021 |
| | 3 $H_2O$ | aq | 860.314 | 48.994 | 7.071 |
| | 4 $H_2O$ | aq | 865.376 | 54.057 | 5.063 |
| | 5 $H_2O$ | aq | 869.351 | 58.032 | 3.975 |
| | 10 $H_2O$ | aq | 878.347 | 67.027 | 8.995 |
| | 25 $H_2O$ | aq | 883.618 | 72.299 | 5.272 |
| | 50 $H_2O$ | aq | 884.664 | 73.345 | 1.046 |
| | 100 $H_2O$ | aq | 885.292 | 73.973 | 0.628 |
| | 500 $H_2O$ | aq | 888.054 | 76.734 | 2.761 |
| | 1,000 $H_2O$ | aq | 889.894 | 78.575 | 1.841 |
| | 10,000 $H_2O$ | aq | 898.388 | 87.069 | 2.636 |
| | 100,000 $H_2O$ | aq | 904.957 | 93.637 | 6.568 |
| | 500,000 $H_2O$ | aq | 906.630 | 95.311 | 1.674 |
| | ∞ $H_2O$ | aq | 907.509 | 96.190 | 0.879 |

SOURCE: F. D. Rossini et al., "Selected Values of Chem. Thermo. Properties," *National Bureau of Standards Circular 500,* U.S. Government Printing Office, Washington, DC (1952).