**SUPPLEMENTARY MATERIALS**

**Table I-S:** Density *ρ*, and viscosity *η*for different aqueous glycine solutions at *T*

= (298.15 – 313.15) K

|  |  |  |  |
| --- | --- | --- | --- |
| *ca* | *T* /K |  |  |
| 0.005 | 298.15 | 0.99720 | 0.8973 |
| 303.15 | 0.99580 | 0.8038 |
| 308.15 | 0.99419 | 0.7253 |
| 313.15 | 0.99231 | 0.6597 |
| 0.010 | 298.15 | 0.99745 | 0.9052 |
| 303.15 | 0.99602 | 0.8102 |
| 308.15 | 0.99459 | 0.7318 |
| 313.15 | 0.99276 | 0.6671 |
| 0.015 | 298.15 | 0.99784 | 0.9078 |
| 303.15 | 0.99644 | 0.8166 |
| 308.15 | 0.99478 | 0.7288 |
| 313.15 | 0.99298 | 0.6744 |
| 0.020 | 298.15 | 0.99813 | 0.9141 |
| 303.15 | 0.99673 | 0.823 |
| 308.15 | 0.99509 | 0.7361 |
| 313.15 | 0.99326 | 0.6816 |

*a* Molarity of glycine in water in mol dm-3.

**Table II-S:** Molality *m*, density *ρ*, viscosity *η*, apparent molar volume *φV* for sodium pyruvate in different aqueous glycine solutions at *T* = (298.15 – 318.15) K

|  |  |  |  |
| --- | --- | --- | --- |
| *m*  /mol kg-1 |  |  | *φV*x 106  /m3 mol-1 |
| *c* = 0.000a | | | |
| *T* = 298.15 K | | | |
| 0.0200 | 0.99788 | 0.8972 | 69.77 |
| 0.0360 | 0.99850 | 0.9038 | 70.53 |
| 0.0520 | 0.99910 | 0.9104 | 71.18 |
| 0.0760 | 1.00000 | 0.9173 | 71.68 |
| 0.0840 | 1.00028 | 0.9206 | 72.05 |
| 0.0999 | 1.00082 | 0.9267 | 72.74 |
| *T* = 303.15 K | | | |
| 0.0200 | 0.99645 | 0.8044 | 71.32 |
| 0.0359 | 0.99704 | 0.8110 | 72.24 |
| 0.0519 | 0.99762 | 0.8176 | 72.77 |
| 0.0758 | 0.99850 | 0.8260 | 73.04 |
| 0.0839 | 0.99875 | 0.8308 | 73.65 |
| 0.0998 | 0.99927 | 0.8369 | 74.30 |
| *T* = 308.15 K | | | |
| 0.0200 | 0.99481 | 0.7257 | 72.88 |
| 0.0359 | 0.99537 | 0.7308 | 73.98 |
| 0.0518 | 0.99592 | 0.7375 | 74.57 |
| 0.0758 | 0.99675 | 0.7474 | 74.96 |
| 0.0837 | 0.99702 | 0.7507 | 75.15 |
| 0.0996 | 0.99753 | 0.7569 | 75.67 |
| *T =* 313.15 K | | | |
| 0.0199 | 0.99297 | 0.6602 | 73.96 |
| 0.0358 | 0.99352 | 0.6669 | 74.89 |
| 0.0517 | 0.99407 | 0.6735 | 75.22 |
| 0.0756 | 0.99487 | 0.682 | 75.83 |
| 0.0836 | 0.99512 | 0.6868 | 76.18 |
| 0.0994 | 0.99564 | 0.6931 | 76.44 |
| *c* = 0.005a | | | |
| *T* = 298.15 K | | | |
| 0.0200 | 0.99818 | 0.9035 | 61.26 |
| 0.0360 | 0.99891 | 0.9103 | 62.74 |
| 0.0520 | 0.99963 | 0.9162 | 63.47 |
| 0.0760 | 1.00071 | 0.9256 | 64.04 |
| 0.0840 | 1.00103 | 0.9289 | 64.63 |
| 0.0999 | 1.00170 | 0.935 | 65.21 |
| *T* = 303.15 K | | | |
| 0.0200 | 0.99675 | 0.8107 | 62.78 |
| 0.0360 | 0.99749 | 0.8175 | 63.32 |
| 0.0519 | 0.99818 | 0.8242 | 64.46 |
| 0.0759 | 0.99923 | 0.8343 | 65.12 |
| 0.0839 | 0.99958 | 0.8392 | 65.25 |
| 0.0998 | 1.00020 | 0.8453 | 66.23 |
| T = 308.15 K | | | |
| 0.0200 | 0.99509 | 0.7291 | 65.32 |
| 0.0359 | 0.99579 | 0.7358 | 65.86 |
| 0.0518 | 0.99646 | 0.7425 | 66.62 |
| 0.0758 | 0.99746 | 0.7511 | 67.27 |
| 0.0837 | 0.99776 | 0.7544 | 67.80 |
| 0.0996 | 0.99835 | 0.7606 | 68.68 |
| *T =* 313.15 K | | | |
| 0.0199 | 0.99319 | 0.6666 | 66.37 |
| 0.0358 | 0.99388 | 0.6734 | 66.74 |
| 0.0517 | 0.99453 | 0.6817 | 67.63 |
| 0.0756 | 0.99550 | 0.6903 | 68.38 |
| 0.0836 | 0.99580 | 0.6952 | 68.81 |
| 0.0994 | 0.99639 | 0.6999 | 69.54 |
| *c* = 0.010a | | | |
| *T* = 298.15 K | | | |
| 0.0200 | 0.9984 | 0.9098 | 62.76 |
| 0.0360 | 0.99913 | 0.9165 | 63.57 |
| 0.0520 | 0.99984 | 0.9225 | 64.24 |
| 0.0760 | 1.00089 | 0.9318 | 64.96 |
| 0.0840 | 1.00120 | 0.9351 | 65.57 |
| 0.0999 | 1.00184 | 0.9412 | 66.30 |
| *T* = 303.15 K | | | |
| 0.0200 | 0.99694 | 0.817 | 64.28 |
| 0.0360 | 0.99765 | 0.8238 | 64.99 |
| 0.0519 | 0.99835 | 0.8320 | 65.42 |
| 0.0759 | 0.99936 | 0.8421 | 66.31 |
| 0.0839 | 0.99967 | 0.8469 | 66.80 |
| 0.0998 | 1.00031 | 0.8530 | 67.33 |
| *T* = 308.15 K | | | |
| 0.0200 | 0.99547 | 0.7387 | 66.32 |
| 0.0359 | 0.99615 | 0.7454 | 66.97 |
| 0.0518 | 0.99681 | 0.7521 | 67.58 |
| 0.0758 | 0.99780 | 0.7637 | 68.06 |
| 0.0838 | 0.99808 | 0.7678 | 68.74 |
| 0.0996 | 0.99867 | 0.7740 | 69.48 |
| *T =* 313.15 K | | | |
| 0.0199 | 0.99362 | 0.6732 | 67.37 |
| 0.0359 | 0.99430 | 0.6800 | 67.57 |
| 0.0517 | 0.99495 | 0.6867 | 68.21 |
| 0.0756 | 0.99592 | 0.6968 | 68.77 |
| 0.0836 | 0.99617 | 0.7001 | 69.75 |
| 0.0994 | 0.99677 | 0.7080 | 70.23 |
| *c* = 0.015a | | | |
| *T* = 298.15 K | | | |
| 0.0200 | 0.99876 | 0.9132 | 64.25 |
| 0.0360 | 0.99948 | 0.9199 | 64.67 |
| 0.0520 | 1.00017 | 0.9258 | 65.38 |
| 0.0760 | 1.00119 | 0.9366 | 66.08 |
| 0.0840 | 1.00148 | 0.9399 | 66.87 |
| 0.0999 | 1.00210 | 0.9475 | 67.59 |
| *T* = 303.15 K | | | |
| 0.0200 | 0.99732 | 0.8235 | 66.28 |
| 0.0360 | 0.99801 | 0.8302 | 66.65 |
| 0.0519 | 0.99867 | 0.8376 | 67.34 |
| 0.0758 | 0.99966 | 0.8500 | 67.82 |
| 0.0839 | 0.99995 | 0.8540 | 68.45 |
| 0.0998 | 1.00052 | 0.8602 | 69.42 |
| *T* = 308.15 K | | | |
| 0.0200 | 0.99565 | 0.7326 | 66.82 |
| 0.0359 | 0.99633 | 0.7393 | 67.24 |
| 0.0518 | 0.99698 | 0.7460 | 67.96 |
| 0.0757 | 0.99796 | 0.7561 | 68.39 |
| 0.0838 | 0.99824 | 0.7594 | 69.10 |
| 0.0996 | 0.99882 | 0.7656 | 69.87 |
| *T =* 313.15 K | | | |
| 0.0199 | 0.99382 | 0.6797 | 68.38 |
| 0.0359 | 0.99448 | 0.6864 | 68.69 |
| 0.0517 | 0.99511 | 0.6931 | 69.36 |
| 0.0756 | 0.99604 | 0.7040 | 70.03 |
| 0.0836 | 0.99631 | 0.7073 | 70.71 |
| 0.0994 | 0.99690 | 0.7143 | 71.14 |
| *c* = 0.020a | | | |
| *T* = 298.15 K | | | |
| 0.0200 | 0.99902 | 0.9195 | 65.74 |
| 0.0360 | 0.99972 | 0.9262 | 66.05 |
| 0.0520 | 1.00040 | 0.9329 | 66.53 |
| 0.0760 | 1.00136 | 0.9436 | 67.65 |
| 0.0840 | 1.00166 | 0.9477 | 68.12 |
| 0.1000 | 1.00226 | 0.9537 | 68.88 |
| *T* = 303.15 K | | | |
| 0.0200 | 0.99759 | 0.8298 | 67.28 |
| 0.0360 | 0.99827 | 0.8365 | 67.48 |
| 0.0519 | 0.99892 | 0.8440 | 68.10 |
| 0.0759 | 0.99988 | 0.8563 | 68.74 |
| 0.0838 | 1.00017 | 0.8604 | 69.23 |
| 0.0998 | 1.00072 | 0.8680 | 70.32 |
| *T* = 308.15 K | | | |
| 0.0200 | 0.99593 | 0.7390 | 68.32 |
| 0.0359 | 0.99659 | 0.7457 | 68.63 |
| 0.0519 | 0.99723 | 0.7524 | 69.11 |
| 0.0757 | 0.99817 | 0.7625 | 69.71 |
| 0.0837 | 0.99844 | 0.7658 | 70.36 |
| 0.0996 | 0.99901 | 0.7720 | 71.07 |
| *T =* 313.15 K | | | |
| 0.0199 | 0.99408 | 0.6861 | 69.38 |
| 0.0359 | 0.99473 | 0.6929 | 69.52 |
| 0.0518 | 0.99535 | 0.6996 | 70.13 |
| 0.0756 | 0.99627 | 0.7104 | 70.69 |
| 0.0835 | 0.99654 | 0.7137 | 71.25 |
| 0.0994 | 0.99710 | 0.7208 | 71.93 |

*a* Molarity of glycine in water in mol dm-3.