











|      |        |         |        |        |         |         |        |        |      |        |         |        |        |         |         |        |        |
|------|--------|---------|--------|--------|---------|---------|--------|--------|------|--------|---------|--------|--------|---------|---------|--------|--------|
| 0.75 | 407.09 | 0.97579 | 745.79 | 35.568 | 733.999 | 1444.11 | 2.8921 | 4.7178 | 0.75 | 441.91 | 0.95065 | 704.27 | 61.616 | 896.178 | 1503.97 | 3.2682 | 4.7475 |
| 0.80 | 401.31 | 0.98269 | 714.68 | 36.735 | 750.058 | 1421.69 | 2.9469 | 4.6645 | 0.80 | 435.05 | 0.96362 | 670.32 | 64.647 | 910.344 | 1470.51 | 3.3237 | 4.6772 |
| 0.85 | 395.72 | 0.98825 | 679.27 | 37.939 | 769.062 | 1401.21 | 3.0032 | 4.6140 | 0.85 | 428.15 | 0.97457 | 630.95 | 68.040 | 925.740 | 1438.61 | 3.3762 | 4.6070 |
| 0.90 | 390.19 | 0.99282 | 638.41 | 39.225 | 790.964 | 1381.85 | 3.0593 | 4.5648 | 0.90 | 421.19 | 0.98388 | 584.13 | 71.990 | 941.050 | 1407.10 | 3.4211 | 4.5345 |
| 0.95 | 384.65 | 0.99663 | 589.50 | 40.630 | 817.041 | 1363.18 | 3.1149 | 4.5157 | 0.95 | 414.12 | 0.99196 | 524.97 | 76.835 | 962.802 | 1375.45 | 3.4708 | 4.4583 |
| 1.00 | 378.83 | 1.00000 | 526.54 | 42.267 | 849.875 | 1344.05 | 3.1584 | 4.4628 | 1.00 | 406.24 | 1.00000 | 440.16 | 83.828 | 997.299 | 1339.19 | 3.5231 | 4.3647 |

**Table C1** Isobaric saturation properties of methylamine/water mixture—Continued

| $P$<br>bar | $\xi$ | $T$<br>K | $\psi$  | $\rho_L$<br>kg/m <sup>3</sup> | $\rho_V$<br>kg/m <sup>3</sup> | $h_L$<br>kJ/kg | $h_V$<br>kJ/kg | $s_L$<br>kJ/(kg K) | $s_V$<br>kJ/(kg K) | $P$<br>bar | $\xi$ | $T$<br>K | $\psi$<br>bar | $\rho_L$<br>kg/m <sup>3</sup> | $\rho_V$<br>kg/m <sup>3</sup> | $h_L$<br>kJ/kg | $h_V$<br>kJ/kg | $s_L$<br>kJ/(kg K) | $s_V$<br>kJ/(kg K) |
|------------|-------|----------|---------|-------------------------------|-------------------------------|----------------|----------------|--------------------|--------------------|------------|-------|----------|---------------|-------------------------------|-------------------------------|----------------|----------------|--------------------|--------------------|
| 60.0       | 0.00  | 536.62   | 0.00000 | 773.46                        | 30.789                        | 1257.90        | 2828.60        | 3.0518             | 5.9167             | 100        | 0.00  | 583.72   | 0.00000       | 693.01                        | 56.342                        | 1502.24        | 2796.12        | 3.4736             | 5.6903             |
|            | 0.05  | 529.55   | 0.17191 | 788.08                        | 33.742                        | 1207.72        | 2622.80        | 3.0636             | 5.9008             |            | 0.05  | 576.15   | 0.14605       | 711.60                        | 60.992                        | 1444.68        | 2626.96        | 3.4781             | 5.7042             |
|            | 0.10  | 523.89   | 0.29246 | 798.88                        | 36.340                        | 1166.43        | 2474.05        | 3.0730             | 5.8326             |            | 0.10  | 569.78   | 0.25719       | 725.76                        | 65.537                        | 1396.30        | 2492.79        | 3.4793             | 5.6610             |
|            | 0.15  | 519.07   | 0.38332 | 806.63                        | 38.682                        | 1131.23        | 2359.20        | 3.0864             | 5.7616             |            | 0.15  | 564.29   | 0.34404       | 736.17                        | 69.908                        | 1355.07        | 2384.27        | 3.4857             | 5.6072             |
|            | 0.20  | 514.64   | 0.45768 | 811.82                        | 40.909                        | 1100.09        | 2263.22        | 3.1024             | 5.6915             |            | 0.20  | 559.36   | 0.41529       | 743.35                        | 74.188                        | 1319.19        | 2292.60        | 3.4966             | 5.5506             |
|            | 0.25  | 510.21   | 0.52321 | 814.69                        | 43.159                        | 1071.73        | 2176.90        | 3.1196             | 5.6201             |            | 0.25  | 554.69   | 0.47695       | 747.60                        | 78.533                        | 1287.38        | 2211.09        | 3.5107             | 5.4922             |
|            | 0.30  | 505.48   | 0.58410 | 815.29                        | 45.548                        | 1045.45        | 2094.92        | 3.1369             | 5.5449             |            | 0.30  | 550.04   | 0.53278       | 748.99                        | 83.113                        | 1258.92        | 2135.27        | 3.5274             | 5.4310             |
|            | 0.35  | 500.19   | 0.64213 | 813.55                        | 48.166                        | 1021.02        | 2014.75        | 3.1539             | 5.4639             |            | 0.35  | 545.23   | 0.58479       | 747.43                        | 88.086                        | 1233.59        | 2062.53        | 3.5463             | 5.3661             |
|            | 0.40  | 494.18   | 0.69740 | 809.32                        | 51.060                        | 998.60         | 1935.97        | 3.1709             | 5.3765             |            | 0.40  | 540.12   | 0.63373       | 742.65                        | 93.576                        | 1211.54        | 1991.79        | 3.5680             | 5.2967             |
|            | 0.45  | 487.38   | 0.74894 | 802.33                        | 54.233                        | 978.71         | 1859.61        | 3.1886             | 5.2836             |            | 0.45  | 534.67   | 0.67950       | 734.29                        | 99.659                        | 1193.21        | 1923.07        | 3.5931             | 5.2231             |
|            | 0.50  | 479.87   | 0.79535 | 792.27                        | 57.638                        | 962.29         | 1787.52        | 3.2088             | 5.1877             |            | 0.50  | 528.89   | 0.72159       | 721.89                        | 106.36                        | 1179.24        | 1857.03        | 3.6230             | 5.1462             |
|            | 0.55  | 471.93   | 0.83548 | 778.73                        | 61.196                        | 950.46         | 1721.60        | 3.2337             | 5.0923             |            | 0.55  | 522.86   | 0.75953       | 704.96                        | 113.67                        | 1170.19        | 1794.43        | 3.6587             | 5.0673             |
|            | 0.60  | 463.94   | 0.86891 | 761.29                        | 64.825                        | 944.22         | 1663.03        | 3.2655             | 5.0005             |            | 0.60  | 516.67   | 0.79322       | 683.04                        | 121.62                        | 1166.34        | 1735.62        | 3.7008             | 4.9876             |
|            | 0.65  | 456.22   | 0.89613 | 739.62                        | 68.481                        | 943.91         | 1611.81        | 3.3052             | 4.9144             |            | 0.65  | 510.36   | 0.82307       | 655.76                        | 130.34                        | 1167.40        | 1680.16        | 3.7490             | 4.9071             |
|            | 0.70  | 448.91   | 0.91828 | 713.52                        | 72.203                        | 948.93         | 1566.73        | 3.3519             | 4.8337             |            | 0.70  | 503.88   | 0.84979       | 622.80                        | 140.19                        | 1172.60        | 1626.81        | 3.8017             | 4.8246             |
| 80.0       | 0.00  | 563.24   | 0.00000 | 733.11                        | 42.808                        | 1386.96        | 2816.54        | 3.2783             | 5.7965             | 120        | 0.00  | 597.41   | 0.00000       | 651.88                        | 71.866                        | 1609.91        | 2768.39        | 3.6509             | 5.5901             |
|            | 0.05  | 555.87   | 0.15834 | 749.81                        | 46.625                        | 1332.88        | 2630.07        | 3.2862             | 5.7980             |            | 0.05  | 589.76   | 0.13423       | 672.25                        | 77.283                        | 1549.08        | 2615.68        | 3.6522             | 5.6135             |
|            | 0.10  | 549.81   | 0.27415 | 762.35                        | 50.166                        | 1287.89        | 2488.74        | 3.2912             | 5.7436             |            | 0.10  | 583.19   | 0.24042       | 687.95                        | 82.877                        | 1497.49        | 2488.90        | 3.6500             | 5.5798             |
|            | 0.15  | 544.63   | 0.36297 | 771.49                        | 53.456                        | 1249.55        | 2377.19        | 3.3009             | 5.6823             |            | 0.15  | 577.48   | 0.32516       | 699.53                        | 88.470                        | 1453.51        | 2383.52        | 3.6533             | 5.5324             |
|            | 0.20  | 539.95   | 0.43561 | 777.76                        | 56.622                        | 1215.92        | 2283.66        | 3.3142             | 5.6199             |            | 0.20  | 572.36   | 0.39511       | 707.50                        | 94.078                        | 1415.51        | 2293.41        | 3.6619             | 5.4803             |
|            | 0.25  | 535.42   | 0.49893 | 781.41                        | 59.817                        | 1185.73        | 2200.23        | 3.3297             | 5.5562             |            | 0.25  | 567.57   | 0.45538       | 712.16                        | 99.838                        | 1382.24        | 2213.19        | 3.6749             | 5.4256             |
|            | 0.30  | 530.78   | 0.55694 | 782.52                        | 63.188                        | 1158.27        | 2121.95        | 3.3467             | 5.4895             |            | 0.30  | 562.88   | 0.50943       | 713.60                        | 105.94                        | 1352.98        | 2138.93        | 3.6914             | 5.3681             |
|            | 0.35  | 525.80   | 0.61159 | 781.00                        | 66.855                        | 1133.32        | 2046.20        | 3.3647             | 5.4182             |            | 0.35  | 558.14   | 0.55923       | 711.68                        | 112.59                        | 1327.47        | 2068.14        | 3.7115             | 5.3071             |
|            | 0.40  | 520.36   | 0.66340 | 776.64                        | 70.901                        | 1111.03        | 1972.14        | 3.3842             | 5.3417             |            | 0.40  | 553.22   | 0.60569       | 706.11                        | 119.97                        | 1305.88        | 1999.56        | 3.7355             | 5.2421             |
|            | 0.45  | 514.38   | 0.71191 | 769.14                        | 75.354                        | 1091.90        | 1900.19        | 3.4059             | 5.2605             |            | 0.45  | 548.07   | 0.64892       | 696.41                        | 128.23                        | 1288.65        | 1932.93        | 3.7642             | 5.1730             |
|            | 0.50  | 507.92   | 0.75625 | 758.12                        | 80.195                        | 1076.65        | 1831.52        | 3.4312             | 5.1761             |            | 0.50  | 542.70   | 0.68868       | 682.03                        | 137.48                        | 1276.35        | 1868.49        | 3.7989             | 5.1004             |
|            | 0.55  | 501.11   | 0.79563 | 743.15                        | 85.362                        | 1066.06        | 1767.39        | 3.4617             | 5.0905             |            | 0.55  | 537.16   | 0.72471       | 662.34                        | 147.86                        | 1269.48        | 1806.61        | 3.8405             | 5.0249             |
|            | 0.60  | 494.15   | 0.82981 | 723.82                        | 90.804                        | 1060.67        | 1708.55        | 3.4984             | 5.0059             |            | 0.60  | 531.49   | 0.75704       | 636.71                        | 159.56                        | 1268.22        | 1747.21        | 3.8894             | 4.9470             |



|       |        |         |        |        |         |         |        |        |  |  |
|-------|--------|---------|--------|--------|---------|---------|--------|--------|--|--|
| 0.62  | 545.81 | 0.62070 | 453.14 | 451.12 | 1547.00 | 1548.92 | 4.4076 | 4.4118 |  |  |
| 0.64  | 552.54 | 0.68233 | 457.96 | 317.73 | 1521.25 | 1656.39 | 4.3822 | 4.6703 |  |  |
| 0.66  | 551.89 | 0.68348 | 424.56 | 345.74 | 1544.22 | 1619.42 | 4.4443 | 4.6046 |  |  |
| 0.677 | 551.27 | 0.67700 | 384.71 | 384.71 | 1577.15 | 1577.15 | 4.5213 | 4.5213 |  |  |



**Table C2** Properties of methylamine/water mixture in the one-phase region

| T<br>K             | water                          |                               |  | $\xi = 0.2$                    |                               |  | $\xi = 0.4$                    |                               |  | $\xi = 0.6$                    |                               |  | $\xi = 0.8$                    |                               |  | methylamine                    |                               |  |
|--------------------|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|
|                    | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  |
|                    | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ |
| <b>P = 0.1 bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15             |                                |                               |  |                                |                               |  | 963.51                         | -273.24                       | -0.4196                                    | 904.17                         | -206.52                       | -0.1332                                    | 819.56                         | -36.245                       | 0.3756                                     | 706.03                         | 186.73                        | 0.9317                                     |
| 248.15             |                                |                               |  | 993.50                         | -145.16                       | -0.1470                                    | 958.47                         | -176.54                       | -0.0090                                    | 0.1170                         | 1685.20                       | 6.5006                                     | 0.132                          | 1441.82                       | 6.0193                                     | 0.151                          | 1198.47                       | 5.4015                                     |
| 273.15             | 999.86                         | -0.006                        | 0.0000                                     | 986.88                         | -58.216                       | 0.1867                                     | 952.70                         | -76.749                       | 0.3740                                     | 0.106                          | 1727.50                       | 6.6630                                     | 0.120                          | 1482.74                       | 6.1763                                     | 0.137                          | 1238.01                       | 5.5533                                     |
| 298.15             | 990.67                         | 81.220                        | 0.2844                                     | 979.37                         | 34.033                        | 0.5097                                     | 0.088                          | 2016.89                       | 7.2437                                     | 0.097                          | 1771.16                       | 6.8159                                     | 0.110                          | 1525.43                       | 6.3258                                     | 0.125                          | 1279.73                       | 5.6994                                     |
| 323.15             | 0.067                          | 2555.03                       | 8.0450                                     | 0.073                          | 2308.76                       | 7.7648                                     | 0.081                          | 2062.49                       | 7.3906                                     | 0.090                          | 1816.21                       | 6.9609                                     | 0.101                          | 1569.94                       | 6.4691                                     | 0.116                          | 1323.69                       | 5.8409                                     |
| 348.15             | 0.062                          | 2601.92                       | 8.1848                                     | 0.068                          | 2355.52                       | 7.9042                                     | 0.075                          | 2109.11                       | 7.5295                                     | 0.083                          | 1862.69                       | 7.0994                                     | 0.094                          | 1616.28                       | 6.6072                                     | 0.107                          | 1369.89                       | 5.9786                                     |
| 373.15             | 0.058                          | 2649.03                       | 8.3155                                     | 0.063                          | 2402.90                       | 8.0356                                     | 0.070                          | 2156.76                       | 7.6617                                     | 0.078                          | 1910.61                       | 7.2323                                     | 0.088                          | 1664.47                       | 6.7409                                     | 0.100                          | 1418.35                       | 6.1129                                     |
| 398.15             | 0.054                          | 2696.40                       | 8.4383                                     | 0.059                          | 2450.93                       | 8.1602                                     | 0.065                          | 2205.46                       | 7.7880                                     | 0.073                          | 1959.98                       | 7.3604                                     | 0.082                          | 1714.50                       | 6.8706                                     | 0.094                          | 1469.05                       | 6.2444                                     |
| 423.15             | 0.051                          | 2744.06                       | 8.5544                                     | 0.056                          | 2499.64                       | 8.2788                                     | 0.062                          | 2255.21                       | 7.9092                                     | 0.069                          | 2010.78                       | 7.4841                                     | 0.077                          | 1766.35                       | 6.9969                                     | 0.088                          | 1521.95                       | 6.3733                                     |
| 448.15             | 0.048                          | 2792.02                       | 8.6645                                     | 0.053                          | 2549.02                       | 8.3922                                     | 0.058                          | 2306.01                       | 8.0258                                     | 0.065                          | 2062.99                       | 7.6040                                     | 0.073                          | 1819.98                       | 7.1200                                     | 0.083                          | 1576.98                       | 6.4996                                     |
| 473.15             | 0.046                          | 2840.32                       | 8.7694                                     | 0.050                          | 2599.08                       | 8.5009                                     | 0.055                          | 2357.83                       | 8.1383                                     | 0.061                          | 2116.57                       | 7.7203                                     | 0.069                          | 1875.32                       | 7.2402                                     | 0.079                          | 1634.08                       | 6.6236                                     |
| 498.15             | 0.044                          | 2888.97                       | 8.8696                                     | 0.048                          | 2649.81                       | 8.6053                                     | 0.052                          | 2410.64                       | 8.2471                                     | 0.058                          | 2171.47                       | 7.8334                                     | 0.066                          | 1932.30                       | 7.3575                                     | 0.075                          | 1693.15                       | 6.7452                                     |
| 523.15             | 0.041                          | 2937.99                       | 8.9656                                     | 0.045                          | 2701.21                       | 8.7060                                     | 0.050                          | 2464.42                       | 8.3524                                     | 0.055                          | 2227.62                       | 7.9433                                     | 0.062                          | 1990.83                       | 7.4722                                     | 0.071                          | 1754.05                       | 6.8645                                     |
| 548.15             | 0.040                          | 2987.40                       | 9.0579                                     | 0.043                          | 2753.25                       | 8.8032                                     | 0.048                          | 2519.10                       | 8.4545                                     | 0.053                          | 2284.95                       | 8.0504                                     | 0.060                          | 2050.80                       | 7.5841                                     | 0.068                          | 1816.66                       | 6.9814                                     |
| 573.15             | 0.038                          | 3037.19                       | 9.1467                                     | 0.041                          | 2805.92                       | 8.8971                                     | 0.045                          | 2574.64                       | 8.5536                                     | 0.051                          | 2343.36                       | 8.1546                                     | 0.057                          | 2112.08                       | 7.6934                                     | 0.065                          | 1880.82                       | 7.0958                                     |
| 598.15             | 0.036                          | 3087.38                       | 9.2324                                     | 0.040                          | 2859.17                       | 8.9881                                     | 0.044                          | 2630.96                       | 8.6497                                     | 0.048                          | 2402.74                       | 8.2560                                     | 0.055                          | 2174.53                       | 7.8001                                     | 0.062                          | 1946.33                       | 7.2077                                     |
| 623.15             | 0.035                          | 3137.96                       | 9.3153                                     | 0.038                          | 2912.97                       | 9.0762                                     | 0.042                          | 2687.98                       | 8.7431                                     | 0.047                          | 2462.98                       | 8.3546                                     | 0.052                          | 2237.99                       | 7.9040                                     | 0.060                          | 2013.00                       | 7.3169                                     |
| <b>P = 0.5 bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15             |                                |                               |  |                                |                               |  | 963.51                         | -273.20                       | -0.4196                                    | 904.17                         | -206.48                       | -0.1332                                    | 819.56                         | -36.200                       | 0.3756                                     | 706.04                         | 186.779                       | 0.9317                                     |
| 248.15             |                                |                               |  | 993.50                         | -145.12                       | -0.1470                                    | 958.47                         | -176.50                       | -0.0090                                    | 898.60                         | -99.184                       | 0.3225                                     | 811.45                         | 72.977                        | 0.8394                                     | 691.17                         | 290.253                       | 1.3713                                     |
| 273.15             | 999.86                         | 0.0305                        | 0.0000                                     | 986.88                         | -58.179                       | 0.1867                                     | 952.70                         | -76.710                       | 0.3740                                     | 892.16                         | 8.7247                        | 0.7368                                     | 0.604                          | 1480.94                       | 5.6791                                     | 0.691                          | 1236.45                       | 5.1188                                     |
| 298.15             | 990.67                         | 81.2552                       | 0.2844                                     | 979.37                         | 34.0693                       | 0.5097                                     | 946.07                         | 26.136                        | 0.7342                                     | 0.490                          | 1769.46                       | 6.2569                                     | 0.552                          | 1523.85                       | 5.8294                                     | 0.631                          | 1278.38                       | 5.2657                                     |
| 323.15             | 980.33                         | 169.38                        | 0.5681                                     | 970.79                         | 131.40                        | 0.8230                                     | 0.406                          | 2060.88                       | 6.7698                                     | 0.451                          | 1814.70                       | 6.4026                                     | 0.508                          | 1568.54                       | 5.9733                                     | 0.582                          | 1322.50                       | 5.4077                                     |
| 348.15             | 968.62                         | 263.93                        | 0.8498                                     | 0.342                          | 2353.95                       | 7.2214                                     | 0.376                          | 2107.66                       | 6.9092                                     | 0.418                          | 1861.34                       | 6.5416                                     | 0.471                          | 1615.04                       | 6.1119                                     | 0.539                          | 1368.84                       | 5.5458                                     |
| 373.15             | 0.292                          | 2647.46                       | 7.5706                                     | 0.319                          | 2401.47                       | 7.3532                                     | 0.351                          | 2155.44                       | 7.0418                                     | 0.390                          | 1909.39                       | 6.6749                                     | 0.439                          | 1663.36                       | 6.2459                                     | 0.503                          | 1417.42                       | 5.6805                                     |
| 398.15             | 0.273                          | 2694.97                       | 7.6938                                     | 0.298                          | 2449.63                       | 7.4781                                     | 0.328                          | 2204.26                       | 7.1684                                     | 0.365                          | 1958.87                       | 6.8032                                     | 0.411                          | 1713.50                       | 6.3759                                     | 0.471                          | 1468.21                       | 5.8123                                     |
| 423.15             | 0.257                          | 2742.74                       | 7.8101                                     | 0.281                          | 2498.44                       | 7.5970                                     | 0.309                          | 2254.12                       | 7.2898                                     | 0.344                          | 2009.77                       | 6.9272                                     | 0.387                          | 1765.44                       | 6.5024                                     | 0.443                          | 1521.20                       | 5.9413                                     |
| 448.15             | 0.243                          | 2790.81                       | 7.9205                                     | 0.265                          | 2547.92                       | 7.7106                                     | 0.291                          | 2305.00                       | 7.4066                                     | 0.324                          | 2062.06                       | 7.0472                                     | 0.365                          | 1819.14                       | 6.6257                                     | 0.418                          | 1576.29                       | 6.0678                                     |
| 473.15             | 0.230                          | 2839.20                       | 8.0256                                     | 0.251                          | 2598.06                       | 7.8195                                     | 0.276                          | 2356.89                       | 7.5193                                     | 0.307                          | 2115.71                       | 7.1637                                     | 0.346                          | 1874.54                       | 6.7460                                     | 0.396                          | 1633.44                       | 6.1918                                     |
| 498.15             | 0.218                          | 2887.93                       | 8.1259                                     | 0.238                          | 2648.87                       | 7.9241                                     | 0.262                          | 2409.78                       | 7.6282                                     | 0.291                          | 2170.67                       | 7.2769                                     | 0.328                          | 1931.58                       | 6.8634                                     | 0.376                          | 1692.55                       | 6.3136                                     |
| 523.15             | 0.208                          | 2937.03                       | 8.2221                                     | 0.227                          | 2700.33                       | 8.0249                                     | 0.249                          | 2463.61                       | 7.7337                                     | 0.277                          | 2226.88                       | 7.3870                                     | 0.313                          | 1990.16                       | 6.9782                                     | 0.358                          | 1753.50                       | 6.4329                                     |
| 548.15             | 0.198                          | 2986.50                       | 8.3145                                     | 0.216                          | 2752.44                       | 8.1222                                     | 0.238                          | 2518.35                       | 7.8359                                     | 0.265                          | 2284.26                       | 7.4941                                     | 0.298                          | 2050.17                       | 7.0902                                     | 0.341                          | 1816.14                       | 6.5499                                     |
| 573.15             | 0.189                          | 3036.35                       | 8.4034                                     | 0.207                          | 2805.15                       | 8.2162                                     | 0.228                          | 2573.94                       | 7.9350                                     | 0.253                          | 2342.71                       | 7.5984                                     | 0.285                          | 2111.49                       | 7.1996                                     | 0.326                          | 1880.33                       | 6.6644                                     |
| 598.15             | 0.181                          | 3086.59                       | 8.4892                                     | 0.198                          | 2858.46                       | 8.3072                                     | 0.218                          | 2630.30                       | 8.0313                                     | 0.243                          | 2402.14                       | 7.6998                                     | 0.273                          | 2173.98                       | 7.3063                                     | 0.313                          | 1945.87                       | 6.7763                                     |
| 623.15             | 0.174                          | 3137.23                       | 8.5721                                     | 0.190                          | 2912.31                       | 8.3954                                     | 0.209                          | 2687.37                       | 8.1247                                     | 0.233                          | 2462.41                       | 7.7986                                     | 0.262                          | 2237.47                       | 7.4103                                     | 0.300                          | 2012.57                       | 6.8855                                     |

**Table C2** Properties of methylamine/water mixture in the one-phase region–Continued

| <i>T</i><br>K           | water                          |                               |  | $\xi = 0.2$                    |                               |  | $\xi = 0.4$                    |                               |  | $\xi = 0.6$                    |                               |  | $\xi = 0.8$                    |                               |  | methylamine                    |                               |  |
|-------------------------|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|
|                         | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   |
|                         | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ |
| <b><i>P</i> = 1 bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15                  |                                |                               |  |                                |                               |  | 963.51                         | -273.15                       | -0.4197                                    | 904.17                         | -206.43                       | -0.1332                                    | 819.5610                       | -36.144                       | 0.3755                                     | 706.05                         | 186.84                        | 0.9316                                     |
| 248.15                  |                                |                               |  | 993.50                         | -145.08                       | -0.1470                                    | 958.47                         | -176.45                       | -0.0090                                    | 898.60                         | -99.132                       | 0.3225                                     | 811.4470                       | 73.032                        | 0.8393                                     | 691.18                         | 290.31                        | 1.3712                                     |
| 273.15                  | 999.86                         | 0.0758                        | 0.0000                                     | 986.88                         | -58.132                       | 0.1866                                     | 952.70                         | -76.661                       | 0.3740                                     | 892.16                         | 8.776                         | 0.7368                                     | 801.9410                       | 181.20                        | 1.2547                                     | 1.396                          | 1234.47                       | 4.9287                                     |
| 298.15                  | 990.68                         | 81.300                        | 0.2844                                     | 979.37                         | 34.115                        | 0.5096                                     | 946.07                         | 26.184                        | 0.7342                                     | 0.988                          | 1767.32                       | 6.0134                                     | 1.113                          | 1521.85                       | 5.6129                                     | 1.273                          | 1276.67                       | 5.0765                                     |
| 323.15                  | 980.33                         | 169.42                        | 0.5680                                     | 970.79                         | 131.45                        | 0.8230                                     | 938.41                         | 132.11                        | 1.0753                                     | 0.909                          | 1812.80                       | 6.1598                                     | 1.024                          | 1566.78                       | 5.7576                                     | 1.171                          | 1321.01                       | 5.2193                                     |
| 348.15                  | 968.62                         | 263.98                        | 0.8498                                     | 960.94                         | 233.64                        | 1.1275                                     | 0.757                          | 2105.83                       | 6.6400                                     | 0.842                          | 1859.64                       | 6.2994                                     | 0.948                          | 1613.47                       | 5.8967                                     | 1.084                          | 1367.53                       | 5.3579                                     |
| 373.15                  | 955.31                         | 364.66                        | 1.1290                                     | 0.640                          | 2399.68                       | 7.0574                                     | 0.705                          | 2153.79                       | 6.7730                                     | 0.784                          | 1907.86                       | 6.4331                                     | 0.883                          | 1661.95                       | 6.0312                                     | 1.010                          | 1416.25                       | 5.4930                                     |
| 398.15                  | 0.549                          | 2693.16                       | 7.3713                                     | 0.599                          | 2448.00                       | 7.1827                                     | 0.659                          | 2202.76                       | 6.9000                                     | 0.734                          | 1957.49                       | 6.5619                                     | 0.826                          | 1712.24                       | 6.1616                                     | 0.945                          | 1467.17                       | 5.6251                                     |
| 423.15                  | 0.516                          | 2741.08                       | 7.4880                                     | 0.563                          | 2496.95                       | 7.3019                                     | 0.620                          | 2252.75                       | 7.0218                                     | 0.689                          | 2008.51                       | 6.6861                                     | 0.777                          | 1764.30                       | 6.2884                                     | 0.888                          | 1520.26                       | 5.7544                                     |
| 448.15                  | 0.487                          | 2789.28                       | 7.5987                                     | 0.531                          | 2546.54                       | 7.4158                                     | 0.585                          | 2303.74                       | 7.1389                                     | 0.650                          | 2060.90                       | 6.8064                                     | 0.733                          | 1818.09                       | 6.4119                                     | 0.838                          | 1575.43                       | 5.8810                                     |
| 473.15                  | 0.460                          | 2837.79                       | 7.7040                                     | 0.503                          | 2596.78                       | 7.5249                                     | 0.553                          | 2355.72                       | 7.2517                                     | 0.615                          | 2114.63                       | 6.9231                                     | 0.693                          | 1873.57                       | 6.5323                                     | 0.793                          | 1632.64                       | 6.0052                                     |
| 498.15                  | 0.437                          | 2886.63                       | 7.8046                                     | 0.477                          | 2647.69                       | 7.6297                                     | 0.525                          | 2408.69                       | 7.3608                                     | 0.584                          | 2169.67                       | 7.0364                                     | 0.658                          | 1930.67                       | 6.6499                                     | 0.753                          | 1691.81                       | 6.1271                                     |
| 523.15                  | 0.416                          | 2935.82                       | 7.9009                                     | 0.454                          | 2699.23                       | 7.7307                                     | 0.500                          | 2462.60                       | 7.4664                                     | 0.556                          | 2225.95                       | 7.1466                                     | 0.626                          | 1989.31                       | 6.7648                                     | 0.717                          | 1752.80                       | 6.2465                                     |
| 548.15                  | 0.397                          | 2985.37                       | 7.9935                                     | 0.433                          | 2751.41                       | 7.8281                                     | 0.477                          | 2517.41                       | 7.5687                                     | 0.530                          | 2283.39                       | 7.2539                                     | 0.597                          | 2049.38                       | 6.8769                                     | 0.684                          | 1815.49                       | 6.3636                                     |
| 573.15                  | 0.379                          | 3035.30                       | 8.0825                                     | 0.414                          | 2804.20                       | 7.9223                                     | 0.456                          | 2573.06                       | 7.6680                                     | 0.507                          | 2341.90                       | 7.3582                                     | 0.571                          | 2110.75                       | 6.9864                                     | 0.654                          | 1879.72                       | 6.4781                                     |
| 598.15                  | 0.363                          | 3085.61                       | 8.1685                                     | 0.397                          | 2857.57                       | 8.0134                                     | 0.437                          | 2629.48                       | 7.7643                                     | 0.486                          | 2401.37                       | 7.4598                                     | 0.547                          | 2173.28                       | 7.0932                                     | 0.626                          | 1945.30                       | 6.5901                                     |
| 623.15                  | 0.349                          | 3136.32                       | 8.2515                                     | 0.381                          | 2911.48                       | 8.1017                                     | 0.419                          | 2686.60                       | 7.8579                                     | 0.466                          | 2461.70                       | 7.5586                                     | 0.525                          | 2236.81                       | 7.1972                                     | 0.601                          | 2012.03                       | 6.6994                                     |
| <b><i>P</i> = 2 bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15                  |                                |                               |  |                                |                               |  | 963.51                         | -273.05                       | -0.4197                                    | 904.18                         | -206.32                       | -0.1333                                    | 819.57                         | -36.032                       | 0.3755                                     | 706.06                         | 186.95                        | 0.9315                                     |
| 248.15                  |                                |                               |  | 993.50                         | -144.98                       | -0.1470                                    | 958.47                         | -176.35                       | -0.0091                                    | 898.61                         | -99.028                       | 0.3225                                     | 811.45                         | 73.142                        | 0.8393                                     | 691.20                         | 290.42                        | 1.3711                                     |
| 273.15                  | 999.86                         | 0.1663                        | 0.0000                                     | 986.88                         | -58.039                       | 0.1866                                     | 952.71                         | -76.563                       | 0.3740                                     | 892.16                         | 8.879                         | 0.7367                                     | 801.95                         | 181.31                        | 1.2546                                     | 2.853                          | 1230.40                       | 4.7338                                     |
| 298.15                  | 990.68                         | 81.3889                       | 0.2843                                     | 979.37                         | 34.208                        | 0.5096                                     | 946.08                         | 26.281                        | 0.7342                                     | 884.68                         | 117.76                        | 1.1181                                     | 2.267                          | 1517.77                       | 5.3921                                     | 2.590                          | 1273.19                       | 4.8836                                     |
| 323.15                  | 980.33                         | 169.508                       | 0.5680                                     | 970.80                         | 131.54                        | 0.8230                                     | 938.41                         | 132.20                        | 1.0753                                     | 1.843                          | 1808.93                       | 5.9133                                     | 2.078                          | 1563.20                       | 5.5383                                     | 2.374                          | 1317.98                       | 5.0278                                     |
| 348.15                  | 968.63                         | 264.060                       | 0.8497                                     | 960.95                         | 233.72                        | 1.1275                                     | 1.530                          | 2102.13                       | 6.3675                                     | 1.703                          | 1856.18                       | 6.0541                                     | 1.919                          | 1610.30                       | 5.6787                                     | 2.193                          | 1364.87                       | 5.1675                                     |
| 373.15                  | 955.32                         | 364.744                       | 1.1289                                     | 949.56                         | 340.70                        | 1.4241                                     | 1.422                          | 2150.45                       | 6.5015                                     | 1.583                          | 1904.76                       | 6.1888                                     | 1.783                          | 1659.12                       | 5.8141                                     | 2.038                          | 1413.90                       | 5.3035                                     |
| 398.15                  | 1.106                          | 2689.53                       | 7.0460                                     | 1.207                          | 2444.70                       | 6.8848                                     | 1.329                          | 2199.73                       | 6.6293                                     | 1.479                          | 1954.68                       | 6.3183                                     | 1.666                          | 1709.69                       | 5.9452                                     | 1.905                          | 1465.07                       | 5.4362                                     |
| 423.15                  | 1.039                          | 2737.75                       | 7.1635                                     | 1.133                          | 2493.93                       | 7.0047                                     | 1.248                          | 2249.98                       | 6.7517                                     | 1.388                          | 2005.97                       | 6.4432                                     | 1.564                          | 1762.00                       | 6.0726                                     | 1.788                          | 1518.37                       | 5.5660                                     |
| 448.15                  | 0.979                          | 2786.21                       | 7.2748                                     | 1.068                          | 2543.76                       | 7.1191                                     | 1.176                          | 2301.20                       | 6.8693                                     | 1.308                          | 2058.56                       | 6.5640                                     | 1.474                          | 1815.97                       | 6.1966                                     | 1.685                          | 1573.70                       | 5.6930                                     |
| 473.15                  | 0.926                          | 2834.96                       | 7.3806                                     | 1.010                          | 2594.22                       | 7.2287                                     | 1.112                          | 2353.38                       | 6.9826                                     | 1.237                          | 2112.47                       | 6.6810                                     | 1.394                          | 1871.61                       | 6.3173                                     | 1.594                          | 1631.04                       | 5.8175                                     |
| 498.15                  | 0.878                          | 2884.01                       | 7.4816                                     | 0.958                          | 2645.31                       | 7.3339                                     | 1.055                          | 2406.52                       | 7.0920                                     | 1.174                          | 2167.66                       | 6.7947                                     | 1.322                          | 1928.85                       | 6.4352                                     | 1.512                          | 1690.31                       | 5.9396                                     |
| 523.15                  | 0.835                          | 2933.39                       | 7.5783                                     | 0.912                          | 2697.03                       | 7.4352                                     | 1.004                          | 2460.58                       | 7.1979                                     | 1.116                          | 2224.08                       | 6.9052                                     | 1.257                          | 1987.62                       | 6.5503                                     | 1.438                          | 1751.41                       | 6.0592                                     |
| 548.15                  | 0.796                          | 2983.11                       | 7.6712                                     | 0.869                          | 2749.36                       | 7.5329                                     | 0.957                          | 2515.53                       | 7.3005                                     | 1.064                          | 2281.65                       | 7.0126                                     | 1.199                          | 2047.80                       | 6.6627                                     | 1.372                          | 1814.19                       | 6.1765                                     |
| 573.15                  | 0.761                          | 3033.20                       | 7.7605                                     | 0.831                          | 2802.29                       | 7.6273                                     | 0.915                          | 2571.30                       | 7.4000                                     | 1.017                          | 2340.27                       | 7.1172                                     | 1.146                          | 2109.27                       | 6.7723                                     | 1.311                          | 1878.50                       | 6.2912                                     |
| 598.15                  | 0.729                          | 3083.65                       | 7.8467                                     | 0.796                          | 2855.78                       | 7.7187                                     | 0.876                          | 2627.84                       | 7.4966                                     | 0.974                          | 2399.85                       | 7.2190                                     | 1.097                          | 2171.89                       | 6.8793                                     | 1.255                          | 1944.15                       | 6.4033                                     |
| 623.15                  | 0.699                          | 3134.48                       | 7.9299                                     | 0.763                          | 2909.81                       | 7.8071                                     | 0.840                          | 2685.06                       | 7.5903                                     | 0.934                          | 2460.27                       | 7.3179                                     | 1.053                          | 2235.51                       | 6.9835                                     | 1.204                          | 2010.95                       | 6.5127                                     |

**Table C2** Properties of methylamine/water mixture in the one-phase region—Continued

| <i>T</i><br>K    | water                          |                               |  | $\xi = 0.2$                    |                               |  | $\xi = 0.4$                    |                               |  | $\xi = 0.6$                    |                               |  | $\xi = 0.8$                    |                               |  | methylamine                    |                               |  |
|------------------|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|
|                  | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   |
|                  | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ |
| <i>P</i> = 3 bar |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15           |                                |                               |  |                                |                               |  | 963.51                         | -272.95                       | -0.4197                                    | 904.18                         | -206.22                       | -0.1333                                    | 819.57                         | -35.920                       | 0.3755                                     | 706.08                         | 187.07                        | 0.9314                                     |
| 248.15           |                                |                               |  | 993.50                         | -144.89                       | -0.1471                                    | 958.47                         | -176.26                       | -0.0091                                    | 898.61                         | -98.924                       | 0.3224                                     | 811.46                         | 73.252                        | 0.8392                                     | 691.22                         | 290.53                        | 1.3709                                     |
| 273.15           | 999.87                         | 0.2569                        | -0.0001                                    | 986.89                         | -57.981                       | 0.1864                                     | 952.71                         | -76.466                       | 0.3740                                     | 892.17                         | 8.9811                        | 0.7367                                     | 801.96                         | 181.41                        | 1.2545                                     | 673.20                         | 392.79                        | 1.7636                                     |
| 298.15           | 990.68                         | 81.478                        | 0.2843                                     | 979.38                         | 34.300                        | 0.5096                                     | 946.08                         | 26.377                        | 0.7342                                     | 884.68                         | 117.86                        | 1.1181                                     | 790.75                         | 289.30                        | 1.6325                                     | 3.953                          | 1269.60                       | 4.7674                                     |
| 323.15           | 980.34                         | 169.59                        | 0.5679                                     | 970.80                         | 131.63                        | 0.8229                                     | 938.41                         | 132.30                        | 1.0752                                     | 2.806                          | 1804.96                       | 5.7658                                     | 3.163                          | 1559.53                       | 5.4070                                     | 3.610                          | 1314.89                       | 4.9132                                     |
| 348.15           | 968.64                         | 264.14                        | 0.8496                                     | 960.95                         | 233.81                        | 1.1274                                     | 929.48                         | 241.38                        | 1.4003                                     | 2.584                          | 1852.67                       | 5.9080                                     | 2.913                          | 1607.07                       | 5.5487                                     | 3.326                          | 1362.17                       | 5.0541                                     |
| 373.15           | 955.33                         | 364.83                        | 1.1288                                     | 949.56                         | 340.78                        | 1.4241                                     | 2.1540                         | 2147.07                       | 6.3403                                     | 2.397                          | 1901.61                       | 6.0437                                     | 2.701                          | 1656.25                       | 5.6851                                     | 3.085                          | 1411.51                       | 5.1909                                     |
| 398.15           | 940.10                         | 471.48                        | 1.4054                                     | 1.826                          | 2441.36                       | 6.7083                                     | 2.0100                         | 2196.67                       | 6.4690                                     | 2.237                          | 1951.85                       | 6.1740                                     | 2.520                          | 1707.11                       | 5.8170                                     | 2.879                          | 1462.95                       | 5.3243                                     |
| 423.15           | 1.569                          | 2734.38                       | 6.9716                                     | 1.712                          | 2490.88                       | 6.8289                                     | 1.8850                         | 2247.19                       | 6.5921                                     | 2.097                          | 2003.40                       | 6.2996                                     | 2.363                          | 1759.67                       | 5.9450                                     | 2.700                          | 1516.47                       | 5.4547                                     |
| 448.15           | 1.477                          | 2783.12                       | 7.0835                                     | 1.612                          | 2540.96                       | 6.9439                                     | 1.7750                         | 2298.63                       | 6.7102                                     | 1.974                          | 2056.20                       | 6.4208                                     | 2.224                          | 1813.84                       | 6.0694                                     | 2.542                          | 1571.96                       | 5.5821                                     |
| 473.15           | 1.396                          | 2832.10                       | 7.1899                                     | 1.523                          | 2591.64                       | 7.0540                                     | 1.6770                         | 2351.01                       | 6.8239                                     | 1.866                          | 2110.29                       | 6.5382                                     | 2.102                          | 1869.64                       | 6.1905                                     | 2.402                          | 1629.42                       | 5.7068                                     |
| 498.15           | 1.323                          | 2881.37                       | 7.2913                                     | 1.444                          | 2642.92                       | 7.1596                                     | 1.5900                         | 2404.33                       | 6.9337                                     | 1.768                          | 2165.64                       | 6.6522                                     | 1.992                          | 1927.02                       | 6.3087                                     | 2.278                          | 1688.81                       | 5.8291                                     |
| 523.15           | 1.258                          | 2930.94                       | 7.3884                                     | 1.373                          | 2694.81                       | 7.2612                                     | 1.5110                         | 2458.55                       | 7.0399                                     | 1.681                          | 2222.20                       | 6.7630                                     | 1.894                          | 1985.91                       | 6.4240                                     | 2.165                          | 1750.01                       | 5.9490                                     |
| 548.15           | 1.199                          | 2980.84                       | 7.4816                                     | 1.308                          | 2747.30                       | 7.3592                                     | 1.4400                         | 2513.64                       | 7.1427                                     | 1.602                          | 2279.90                       | 6.8707                                     | 1.805                          | 2046.21                       | 6.5366                                     | 2.064                          | 1812.88                       | 6.0664                                     |
| 573.15           | 1.145                          | 3031.08                       | 7.5712                                     | 1.250                          | 2800.37                       | 7.4539                                     | 1.3760                         | 2569.54                       | 7.2425                                     | 1.531                          | 2338.64                       | 6.9755                                     | 1.724                          | 2107.78                       | 6.6464                                     | 1.972                          | 1877.27                       | 6.1812                                     |
| 598.15           | 1.096                          | 3081.68                       | 7.6576                                     | 1.196                          | 2853.99                       | 7.5455                                     | 1.3170                         | 2626.19                       | 7.3392                                     | 1.465                          | 2398.32                       | 7.0774                                     | 1.650                          | 2170.50                       | 6.7535                                     | 1.887                          | 1943.00                       | 6.2935                                     |
| 623.15           | 1.051                          | 3132.65                       | 7.7411                                     | 1.148                          | 2908.13                       | 7.6341                                     | 1.2630                         | 2683.52                       | 7.4331                                     | 1.405                          | 2458.84                       | 7.1765                                     | 1.583                          | 2234.20                       | 6.8579                                     | 1.810                          | 2009.87                       | 6.4030                                     |
| <i>P</i> = 4 bar |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15           |                                |                               |  |                                |                               |  | 963.51                         | -272.85                       | -0.4197                                    | 904.18                         | -206.11                       | -0.1333                                    | 819.57                         | -35.808                       | 0.3754                                     | 706.09                         | 187.19                        | 0.9313                                     |
| 248.15           |                                |                               |  | 993.50                         | -144.79                       | -0.1471                                    | 958.47                         | -176.16                       | -0.0091                                    | 898.61                         | -98.820                       | 0.3224                                     | 811.46                         | 73.362                        | 0.8392                                     | 691.25                         | 290.64                        | 1.3708                                     |
| 273.15           | 999.87                         | 0.3474                        | -0.0001                                    | 986.89                         | -57.888                       | 0.1864                                     | 952.71                         | -76.368                       | 0.3739                                     | 892.17                         | 9.0837                        | 0.7367                                     | 801.96                         | 181.52                        | 1.2545                                     | 673.23                         | 392.89                        | 1.7634                                     |
| 298.15           | 990.69                         | 81.567                        | 0.2842                                     | 979.38                         | 34.392                        | 0.5095                                     | 946.08                         | 26.473                        | 0.7341                                     | 884.68                         | 117.96                        | 1.1181                                     | 790.76                         | 289.41                        | 1.6324                                     | 651.02                         | 495.27                        | 2.1220                                     |
| 323.15           | 980.34                         | 169.68                        | 0.5679                                     | 970.80                         | 131.72                        | 0.8229                                     | 938.42                         | 132.39                        | 1.0752                                     | 875.92                         | 228.18                        | 1.4730                                     | 4.283                          | 1555.77                       | 5.3116                                     | 4.8830                         | 1311.73                       | 4.8300                                     |
| 348.15           | 968.64                         | 264.23                        | 0.8496                                     | 960.96                         | 233.90                        | 1.1274                                     | 929.49                         | 241.48                        | 1.4003                                     | 3.488                          | 1849.08                       | 5.8023                                     | 3.932                          | 1603.78                       | 5.4546                                     | 4.4850                         | 1359.43                       | 4.9721                                     |
| 373.15           | 955.34                         | 364.91                        | 1.1288                                     | 949.57                         | 340.87                        | 1.4240                                     | 2.900                          | 2143.63                       | 6.2243                                     | 3.229                          | 1898.42                       | 5.9391                                     | 3.639                          | 1653.33                       | 5.5921                                     | 4.1530                         | 1409.10                       | 5.1099                                     |
| 398.15           | 940.11                         | 471.55                        | 1.4053                                     | 2.454                          | 2437.98                       | 6.5816                                     | 2.702                          | 2193.56                       | 6.3538                                     | 3.007                          | 1948.98                       | 6.0703                                     | 3.389                          | 1704.51                       | 5.7248                                     | 3.8690                         | 1460.81                       | 5.2439                                     |
| 423.15           | 2.106                          | 2730.97                       | 6.8339                                     | 2.298                          | 2487.80                       | 6.7029                                     | 2.530                          | 2244.38                       | 6.4775                                     | 2.816                          | 2000.80                       | 6.1965                                     | 3.173                          | 1757.33                       | 5.8534                                     | 3.6230                         | 1514.55                       | 5.3748                                     |
| 448.15           | 1.981                          | 2780.00                       | 6.9465                                     | 2.162                          | 2538.14                       | 6.8185                                     | 2.380                          | 2296.05                       | 6.5962                                     | 2.648                          | 2053.83                       | 6.3182                                     | 2.984                          | 1811.69                       | 5.9782                                     | 3.4090                         | 1570.21                       | 5.5026                                     |
| 473.15           | 1.870                          | 2829.23                       | 7.0534                                     | 2.041                          | 2589.04                       | 6.9290                                     | 2.247                          | 2348.63                       | 6.7103                                     | 2.500                          | 2108.10                       | 6.4361                                     | 2.817                          | 1867.65                       | 6.0997                                     | 3.2190                         | 1627.80                       | 5.6277                                     |
| 498.15           | 1.772                          | 2878.72                       | 7.1553                                     | 1.934                          | 2640.52                       | 7.0350                                     | 2.129                          | 2402.13                       | 6.8205                                     | 2.369                          | 2163.61                       | 6.5504                                     | 2.668                          | 1925.18                       | 6.2182                                     | 3.0490                         | 1687.31                       | 5.7502                                     |
| 523.15           | 1.684                          | 2928.49                       | 7.2528                                     | 1.837                          | 2692.59                       | 7.1370                                     | 2.023                          | 2456.51                       | 6.9270                                     | 2.250                          | 2220.32                       | 6.6614                                     | 2.535                          | 1984.21                       | 6.3338                                     | 2.8980                         | 1748.61                       | 5.8702                                     |
| 548.15           | 1.604                          | 2978.56                       | 7.3463                                     | 1.750                          | 2745.24                       | 7.2353                                     | 1.927                          | 2511.74                       | 7.0301                                     | 2.144                          | 2278.14                       | 6.7694                                     | 2.415                          | 2044.62                       | 6.4466                                     | 2.7600                         | 1811.58                       | 5.9878                                     |
| 573.15           | 1.532                          | 3028.96                       | 7.4362                                     | 1.672                          | 2798.45                       | 7.3302                                     | 1.840                          | 2567.77                       | 7.1301                                     | 2.047                          | 2337.00                       | 6.8744                                     | 2.306                          | 2106.30                       | 6.5566                                     | 2.6360                         | 1876.05                       | 6.1028                                     |
| 598.15           | 1.466                          | 3079.71                       | 7.5229                                     | 1.600                          | 2852.20                       | 7.4220                                     | 1.761                          | 2624.54                       | 7.2270                                     | 1.959                          | 2396.79                       | 6.9765                                     | 2.206                          | 2169.11                       | 6.6639                                     | 2.5230                         | 1941.85                       | 6.2152                                     |
| 623.15           | 1.405                          | 3130.80                       | 7.6066                                     | 1.534                          | 2906.46                       | 7.5109                                     | 1.688                          | 2681.97                       | 7.3211                                     | 1.878                          | 2457.40                       | 7.0758                                     | 2.115                          | 2232.89                       | 6.7684                                     | 2.4190                         | 2008.79                       | 6.3248                                     |

**Table C2** Properties of methylamine/water mixture in the one-phase region—Continued

| T<br>K           | water                          |               |                 | $\xi = 0.2$                    |               |                 | $\xi = 0.4$                    |               |                 | $\xi = 0.6$                    |               |                 | $\xi = 0.8$                    |               |                 | methylamine                    |               |                 |
|------------------|--------------------------------|---------------|-----------------|--------------------------------|---------------|-----------------|--------------------------------|---------------|-----------------|--------------------------------|---------------|-----------------|--------------------------------|---------------|-----------------|--------------------------------|---------------|-----------------|
|                  | $\rho$<br>kg<br>m <sup>3</sup> | h<br>kJ<br>kg | s<br>kJ<br>kg.K | $\rho$<br>kg<br>m <sup>3</sup> | h<br>kJ<br>kg | s<br>kJ<br>kg.K | $\rho$<br>kg<br>m <sup>3</sup> | h<br>kJ<br>kg | s<br>kJ<br>kg.K | $\rho$<br>kg<br>m <sup>3</sup> | h<br>kJ<br>kg | s<br>kJ<br>kg.K | $\rho$<br>kg<br>m <sup>3</sup> | h<br>kJ<br>kg | s<br>kJ<br>kg.K | $\rho$<br>kg<br>m <sup>3</sup> | h<br>kJ<br>kg | s<br>kJ<br>kg.K |
| <b>P = 5 bar</b> |                                |               |                 |                                |               |                 |                                |               |                 |                                |               |                 |                                |               |                 |                                |               |                 |
| 223.15           |                                |               |                 | 993.50                         | -144.70       | -0.1471         | 963.51                         | -272.75       | -0.4197         | 904.18                         | -206.01       | -0.1333         | 819.58                         | -35.696       | 0.3754          | 706.11                         | 187.31        | 0.9312          |
| 248.15           |                                |               |                 | 986.89                         | -57.794       | 0.1864          | 958.48                         | -176.06       | -0.0091         | 898.61                         | -98.717       | 0.3224          | 811.47                         | 73.472        | 0.8391          | 691.27                         | 290.75        | 1.3707          |
| 273.15           | 999.87                         | 0.4380        | -0.0001         | 979.38                         | 34.484        | 0.5095          | 952.71                         | -76.271       | 0.3739          | 892.17                         | 9.1863        | 0.7366          | 801.97                         | 181.63        | 1.2544          | 673.27                         | 392.99        | 1.7632          |
| 298.15           | 990.69                         | 81.656        | 0.2842          | 970.81                         | 131.81        | 0.8229          | 946.08                         | 26.569        | 0.7341          | 884.69                         | 118.06        | 1.1180          | 790.77                         | 289.51        | 1.6323          | 651.08                         | 495.35        | 2.1218          |
| 323.15           | 980.35                         | 169.77        | 0.5678          | 960.96                         | 233.99        | 1.1273          | 938.42                         | 132.48        | 1.0752          | 875.92                         | 228.28        | 1.4730          | 5.440                          | 1551.92       | 5.2356          | 6.194                          | 1308.51       | 4.7638          |
| 348.15           | 968.65                         | 264.31        | 0.8495          | 949.58                         | 340.95        | 1.4240          | 929.49                         | 241.57        | 1.4002          | 4.415                          | 1845.43       | 5.7187          | 4.978                          | 1600.42       | 5.3802          | 5.673                          | 1356.64       | 4.9072          |
| 373.15           | 955.34                         | 364.99        | 1.1287          | 936.30                         | 452.75        | 1.7139          | 919.00                         | 354.00        | 1.7120          | 4.077                          | 1895.18       | 5.8567          | 4.596                          | 1650.37       | 5.5187          | 5.240                          | 1406.66       | 5.0460          |
| 398.15           | 940.12                         | 471.63        | 1.4052          | 2.893                          | 2484.69       | 6.6041          | 3.406                          | 2190.42       | 6.2632          | 3.791                          | 1946.08       | 5.9887          | 4.273                          | 1701.87       | 5.6523          | 4.874                          | 1458.65       | 5.1808          |
| 423.15           | 922.56                         | 584.23        | 1.6795          | 2.718                          | 2535.29       | 6.7203          | 3.185                          | 2241.53       | 6.3877          | 3.545                          | 1998.18       | 6.1156          | 3.995                          | 1754.96       | 5.7816          | 4.559                          | 1512.63       | 5.3123          |
| 448.15           | 2.491                          | 2776.84       | 6.8392          | 2.993                          | 2293.45       | 6.5069          | 2.993                          | 2293.45       | 6.5069          | 3.331                          | 2051.43       | 6.2379          | 3.753                          | 1809.53       | 5.9069          | 4.285                          | 1568.44       | 5.4404          |
| 473.15           | 2.350                          | 2826.34       | 6.9467          | 2.428                          | 2638.11       | 6.9377          | 2.824                          | 2346.24       | 6.6215          | 3.142                          | 2105.89       | 6.3561          | 3.540                          | 1865.66       | 6.0287          | 4.043                          | 1626.18       | 5.5657          |
| 498.15           | 2.225                          | 2876.05       | 7.0491          | 2.673                          | 2399.91       | 6.7321          | 2.673                          | 2399.91       | 6.7321          | 2.974                          | 2161.57       | 6.4708          | 3.351                          | 1923.34       | 6.1475          | 3.828                          | 1685.80       | 5.6885          |
| 523.15           | 2.113                          | 2926.02       | 7.1469          | 2.539                          | 2454.46       | 6.8389          | 2.539                          | 2454.46       | 6.8389          | 2.824                          | 2218.43       | 6.5821          | 3.182                          | 1982.49       | 6.2634          | 3.635                          | 1747.21       | 5.8088          |
| 548.15           | 2.012                          | 2976.27       | 7.2408          | 2.417                          | 2509.84       | 6.9423          | 2.417                          | 2509.84       | 6.9423          | 2.689                          | 2276.38       | 6.6904          | 3.029                          | 2043.02       | 6.3764          | 3.462                          | 1810.27       | 5.9265          |
| 573.15           | 1.920                          | 3026.84       | 7.3310          | 2.307                          | 2566.00       | 7.0425          | 2.307                          | 2566.00       | 7.0425          | 2.567                          | 2335.36       | 6.7956          | 2.891                          | 2104.80       | 6.4866          | 3.304                          | 1874.82       | 6.0417          |
| 598.15           | 1.837                          | 3077.73       | 7.4179          | 2.207                          | 2622.88       | 7.1396          | 2.207                          | 2622.88       | 7.1396          | 2.455                          | 2395.26       | 6.8978          | 2.766                          | 2167.71       | 6.5940          | 3.161                          | 1940.70       | 6.1542          |
| 623.15           | 1.761                          | 3128.95       | 7.5018          | 2.116                          | 2680.42       | 7.2339          | 2.116                          | 2680.42       | 7.2339          | 2.353                          | 2455.96       | 6.9973          | 2.651                          | 2231.58       | 6.6986          | 3.030                          | 2007.71       | 6.2639          |
| <b>P = 6 bar</b> |                                |               |                 |                                |               |                 |                                |               |                 |                                |               |                 |                                |               |                 |                                |               |                 |
| 223.15           |                                |               |                 | 993.50                         | -144.60       | -0.1471         | 963.52                         | -272.66       | -0.4198         | 904.18                         | -205.90       | -0.1334         | 819.58                         | -35.584       | 0.3753          | 706.12                         | 187.42        | 0.9311          |
| 248.15           |                                |               |                 | 986.90                         | -57.701       | 0.1864          | 958.48                         | -175.96       | -0.0091         | 898.61                         | -98.613       | 0.3223          | 811.47                         | 73.582        | 0.8391          | 691.29                         | 290.86        | 1.3705          |
| 273.15           | 999.88                         | 0.5285        | -0.0002         | 979.39                         | 34.576        | 0.5095          | 952.71                         | -76.173       | 0.3739          | 892.17                         | 9.2888        | 0.7366          | 801.98                         | 181.73        | 1.2543          | 673.30                         | 393.09        | 1.7631          |
| 298.15           | 990.70                         | 81.745        | 0.2842          | 946.09                         | 26.666        | 0.7341          | 946.09                         | 26.666        | 0.7341          | 884.69                         | 118.16        | 1.1180          | 790.78                         | 289.61        | 1.6322          | 651.13                         | 495.44        | 2.1216          |
| 323.15           | 980.35                         | 169.86        | 0.5678          | 970.81                         | 131.90        | 0.8228          | 938.42                         | 132.58        | 1.0751          | 875.93                         | 228.38        | 1.4729          | 777.45                         | 397.93        | 1.9811          | 7.547                          | 1305.20       | 4.7084          |
| 348.15           | 968.66                         | 264.40        | 0.8495          | 960.97                         | 234.08        | 1.1273          | 929.50                         | 241.66        | 1.4002          | 5.3670                         | 1841.70       | 5.6491          | 6.053                          | 1596.99       | 5.3181          | 6.890                          | 1353.80       | 4.8532          |
| 373.15           | 955.35                         | 365.07        | 1.1286          | 949.59                         | 341.04        | 1.4239          | 919.01                         | 354.09        | 1.7120          | 4.9440                         | 1891.88       | 5.7883          | 5.574                          | 1647.36       | 5.4578          | 6.350                          | 1404.18       | 4.9929          |
| 398.15           | 940.13                         | 471.71        | 1.4052          | 936.31                         | 452.83        | 1.7138          | 4.122                          | 2187.24       | 6.1883          | 4.5890                         | 1943.14       | 5.9212          | 5.172                          | 1699.20       | 5.5922          | 5.896                          | 1456.46       | 5.1285          |
| 423.15           | 922.58                         | 584.30        | 1.6794          | 3.496                          | 2481.54       | 6.5224          | 3.850                          | 2238.66       | 6.3135          | 4.2850                         | 1995.54       | 6.0488          | 4.829                          | 1752.57       | 5.7222          | 5.508                          | 1510.68       | 5.2606          |
| 448.15           | 3.008                          | 2773.66       | 6.7507          | 3.614                          | 2290.82       | 6.4333          | 3.614                          | 2290.82       | 6.4333          | 4.0220                         | 2049.01       | 6.1716          | 4.532                          | 1807.35       | 5.8480          | 5.171                          | 1566.67       | 5.3891          |
| 473.15           | 2.835                          | 2823.42       | 6.8588          | 3.406                          | 2343.82       | 6.5484          | 3.406                          | 2343.82       | 6.5484          | 3.7910                         | 2103.67       | 6.2903          | 4.271                          | 1863.65       | 5.9702          | 4.875                          | 1624.54       | 5.5147          |
| 498.15           | 2.682                          | 2873.36       | 6.9616          | 3.222                          | 2397.69       | 6.6593          | 3.222                          | 2397.69       | 6.6593          | 3.5860                         | 2159.52       | 6.4053          | 4.040                          | 1921.48       | 6.0893          | 4.613                          | 1684.29       | 5.6378          |
| 523.15           | 2.546                          | 2923.54       | 7.0599          | 3.058                          | 2452.40       | 6.7665          | 3.058                          | 2452.40       | 6.7665          | 3.4030                         | 2216.52       | 6.5169          | 3.834                          | 1980.77       | 6.2054          | 4.378                          | 1745.80       | 5.7582          |
| 548.15           | 2.423                          | 2973.97       | 7.1541          | 2.911                          | 2507.92       | 6.8701          | 2.911                          | 2507.92       | 6.8701          | 3.2380                         | 2274.61       | 6.6254          | 3.648                          | 2041.41       | 6.3186          | 4.167                          | 1808.95       | 5.8762          |
| 573.15           | 2.312                          | 3024.70       | 7.2446          | 2.777                          | 2564.22       | 6.9706          | 2.777                          | 2564.22       | 6.9706          | 3.0900                         | 2333.71       | 6.7308          | 3.480                          | 2103.31       | 6.4290          | 3.976                          | 1873.59       | 5.9915          |
| 598.15           | 2.211                          | 3075.74       | 7.3317          | 2.656                          | 2621.22       | 7.0679          | 2.656                          | 2621.22       | 7.0679          | 2.9550                         | 2393.72       | 6.8333          | 3.328                          | 2166.31       | 6.5366          | 3.802                          | 1939.55       | 6.1041          |
| 623.15           | 2.118                          | 3127.10       | 7.4158          | 2.545                          | 2678.87       | 7.1623          | 2.545                          | 2678.87       | 7.1623          | 2.8310                         | 2454.52       | 6.9329          | 3.189                          | 2230.27       | 6.6414          | 3.644                          | 2006.63       | 6.2139          |

**Table C2** Properties of methylamine/water mixture in the one-phase region–Continued

| T<br>K            | water                          |                               |  | $\xi = 0.2$                    |                               |  | $\xi = 0.4$                    |                               |  | $\xi = 0.6$                    |                               |  | $\xi = 0.8$                    |                               |  | methylamine                    |                               |  |
|-------------------|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|
|                   | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  | $\rho$                         | $h$                           | $s$  |
|                   | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ |
| <b>P = 8 bar</b>  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15            |                                |                               |  |                                |                               |  | 963.52                         | -272.46                       | -0.4198                                    | 904.18                         | -205.69                       | -0.1334                                    | 819.59                         | -35.360                       | 0.3752                                     | 706.15                         | 187.66                        | 0.9309                                     |
| 248.15            |                                |                               |  | 993.51                         | -144.41                       | -0.1472                                    | 958.48                         | -175.76                       | -0.0092                                    | 898.62                         | -98.405                       | 0.3223                                     | 811.48                         | 73.803                        | 0.8390                                     | 691.34                         | 291.08                        | 1.3703                                     |
| 273.15            | 999.88                         | 0.7096                        | -0.0002                                    | 986.90                         | -57.514                       | 0.1863                                     | 952.72                         | -75.978                       | 0.3738                                     | 892.18                         | 9.4940                        | 0.7365                                     | 801.99                         | 181.95                        | 1.2542                                     | 673.37                         | 393.29                        | 1.7627                                     |
| 298.15            | 990.70                         | 81.924                        | 0.2841                                     | 979.39                         | 34.760                        | 0.5094                                     | 946.09                         | 26.858                        | 0.7340                                     | 884.70                         | 118.37                        | 1.1179                                     | 790.80                         | 289.82                        | 1.6321                                     | 651.25                         | 495.60                        | 2.1211                                     |
| 323.15            | 980.36                         | 170.03                        | 0.5677                                     | 970.82                         | 132.08                        | 0.8227                                     | 938.43                         | 132.77                        | 1.0750                                     | 875.94                         | 228.57                        | 1.4728                                     | 777.49                         | 398.12                        | 1.9809                                     | 623.29                         | 599.58                        | 2.4559                                     |
| 348.15            | 968.67                         | 264.57                        | 0.8494                                     | 960.98                         | 234.25                        | 1.1272                                     | 929.51                         | 241.84                        | 1.4001                                     | 865.60                         | 340.51                        | 1.8064                                     | 8.296                          | 1589.91                       | 5.2169                                     | 9.419                          | 1347.96                       | 4.7653                                     |
| 373.15            | 955.37                         | 365.23                        | 1.1285                                     | 949.60                         | 341.21                        | 1.4238                                     | 919.02                         | 354.26                        | 1.7119                                     | 8.738                          | 1885.12                       | 5.6775                                     | 7.598                          | 1641.20                       | 5.3591                                     | 8.637                          | 1399.13                       | 4.9072                                     |
| 398.15            | 940.15                         | 471.86                        | 1.4050                                     | 936.33                         | 452.99                        | 1.7137                                     | 5.593                          | 2180.74                       | 6.0677                                     | 6.229                          | 1937.13                       | 5.8125                                     | 7.022                          | 1693.76                       | 5.4955                                     | 7.991                          | 1452.03                       | 5.0444                                     |
| 423.15            | 922.61                         | 584.44                        | 1.6792                                     | 920.69                         | 569.81                        | 1.9982                                     | 5.209                          | 2232.81                       | 6.1945                                     | 5.800                          | 1990.16                       | 5.9416                                     | 6.537                          | 1747.71                       | 5.6269                                     | 7.445                          | 1506.75                       | 5.1777                                     |
| 448.15            | 4.062                          | 2767.21                       | 6.6090                                     | 4.430                          | 2526.60                       | 6.5096                                     | 4.878                          | 2285.50                       | 6.3155                                     | 5.431                          | 2044.12                       | 6.0655                                     | 6.120                          | 1802.93                       | 5.7536                                     | 6.975                          | 1563.09                       | 5.3070                                     |
| 473.15            | 3.821                          | 2817.52                       | 6.7183                                     | 4.169                          | 2578.45                       | 6.6222                                     | 4.590                          | 2338.95                       | 6.4315                                     | 5.109                          | 2099.18                       | 6.1850                                     | 5.757                          | 1859.59                       | 5.8767                                     | 6.564                          | 1621.25                       | 5.4333                                     |
| 498.15            | 3.610                          | 2867.94                       | 6.8221                                     | 3.938                          | 2630.77                       | 6.7299                                     | 4.336                          | 2393.20                       | 6.5432                                     | 4.826                          | 2155.38                       | 6.3008                                     | 5.437                          | 1917.74                       | 5.9964                                     | 6.203                          | 1681.24                       | 5.5568                                     |
| 523.15            | 3.422                          | 2918.53                       | 6.9212                                     | 3.733                          | 2683.58                       | 6.8333                                     | 4.110                          | 2448.25                       | 6.6511                                     | 4.574                          | 2212.70                       | 6.4130                                     | 5.153                          | 1977.30                       | 6.1130                                     | 5.880                          | 1742.97                       | 5.6777                                     |
| 548.15            | 3.254                          | 2969.34                       | 7.0161                                     | 3.550                          | 2736.88                       | 6.9329                                     | 3.908                          | 2504.08                       | 6.7553                                     | 4.349                          | 2271.06                       | 6.5220                                     | 4.899                          | 2038.19                       | 6.2267                                     | 5.592                          | 1806.32                       | 5.7960                                     |
| 573.15            | 3.102                          | 3020.41                       | 7.1072                                     | 3.384                          | 2790.69                       | 7.0289                                     | 3.726                          | 2560.64                       | 6.8562                                     | 4.146                          | 2330.40                       | 6.6279                                     | 4.670                          | 2100.30                       | 6.3375                                     | 5.331                          | 1871.13                       | 5.9116                                     |
| 598.15            | 2.964                          | 3071.74                       | 7.1949                                     | 3.234                          | 2844.97                       | 7.1216                                     | 3.561                          | 2617.89                       | 6.9540                                     | 3.961                          | 2390.63                       | 6.7307                                     | 4.462                          | 2163.50                       | 6.4455                                     | 5.095                          | 1937.25                       | 6.0245                                     |
| 623.15            | 2.839                          | 3123.38                       | 7.2794                                     | 3.098                          | 2899.71                       | 7.2112                                     | 3.410                          | 2675.76                       | 7.0487                                     | 3.793                          | 2451.64                       | 6.8306                                     | 4.272                          | 2227.64                       | 6.5505                                     | 4.879                          | 2004.46                       | 6.1346                                     |
| <b>P = 10 bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15            |                                |                               |  |                                |                               |  | 963.52                         | -272.26                       | -0.4198                                    | 904.19                         | -205.48                       | -0.1335                                    | 819.59                         | -35.136                       | 0.3751                                     | 706.18                         | 187.89                        | 0.9307                                     |
| 248.15            |                                |                               |  | 993.51                         | -144.23                       | -0.1472                                    | 958.48                         | -175.57                       | -0.0092                                    | 898.62                         | -98.197                       | 0.3222                                     | 811.49                         | 74.023                        | 0.8389                                     | 691.38                         | 291.31                        | 1.3700                                     |
| 273.15            | 999.89                         | 0.8907                        | -0.0003                                    | 986.90                         | -57.327                       | 0.1862                                     | 952.72                         | -75.783                       | 0.3738                                     | 892.18                         | 9.6991                        | 0.7365                                     | 802.01                         | 182.16                        | 1.2541                                     | 673.44                         | 393.49                        | 1.7624                                     |
| 298.15            | 990.71                         | 82.102                        | 0.2840                                     | 979.40                         | 34.945                        | 0.5093                                     | 946.10                         | 27.050                        | 0.7339                                     | 884.70                         | 118.57                        | 1.1178                                     | 790.82                         | 290.02                        | 1.6319                                     | 651.36                         | 495.77                        | 2.1206                                     |
| 323.15            | 980.38                         | 170.21                        | 0.5676                                     | 970.83                         | 132.26                        | 0.8227                                     | 938.44                         | 132.96                        | 1.0750                                     | 875.95                         | 228.77                        | 1.4727                                     | 777.52                         | 398.32                        | 1.9807                                     | 623.48                         | 599.69                        | 2.4553                                     |
| 348.15            | 968.68                         | 264.74                        | 0.8493                                     | 960.99                         | 234.43                        | 1.1271                                     | 929.52                         | 242.03                        | 1.4000                                     | 865.61                         | 340.70                        | 1.8063                                     | 10.682                         | 1582.48                       | 5.1346                                     | 12.089                         | 1341.90                       | 4.6941                                     |
| 373.15            | 955.39                         | 365.40                        | 1.1284                                     | 949.61                         | 341.38                        | 1.4237                                     | 919.04                         | 354.44                        | 1.7118                                     | 8.618                          | 1878.11                       | 5.5885                                     | 9.721                          | 1634.81                       | 5.2797                                     | 11.023                         | 1393.94                       | 4.8385                                     |
| 398.15            | 940.18                         | 472.01                        | 1.4049                                     | 936.35                         | 453.15                        | 1.7136                                     | 906.58                         | 470.49                        | 2.0128                                     | 7.933                          | 1930.96                       | 5.7256                                     | 8.944                          | 1688.17                       | 5.4181                                     | 10.158                         | 1447.50                       | 4.9774                                     |
| 423.15            | 922.64                         | 584.59                        | 1.6790                                     | 920.71                         | 569.96                        | 1.9980                                     | 6.610                          | 2226.84                       | 6.1000                                     | 7.362                          | 1984.66                       | 5.8564                                     | 8.299                          | 1742.76                       | 5.5511                                     | 9.436                          | 1502.75                       | 5.1120                                     |
| 448.15            | 902.23                         | 703.31                        | 1.9515                                     | 5.609                          | 2520.67                       | 6.4070                                     | 6.176                          | 2280.09                       | 6.2222                                     | 6.877                          | 2039.14                       | 5.9815                                     | 7.751                          | 1798.45                       | 5.6789                                     | 8.821                          | 1559.47                       | 5.2422                                     |
| 473.15            | 4.830                          | 2811.52                       | 6.6074                                     | 5.268                          | 2573.04                       | 6.5207                                     | 5.800                          | 2334.00                       | 6.3393                                     | 6.457                          | 2094.63                       | 6.1020                                     | 7.277                          | 1855.49                       | 5.8028                                     | 8.288                          | 1617.93                       | 5.3691                                     |
| 498.15            | 4.555                          | 2862.44                       | 6.7123                                     | 4.969                          | 2625.81                       | 6.6294                                     | 5.471                          | 2388.66                       | 6.4518                                     | 6.090                          | 2151.20                       | 6.2185                                     | 6.862                          | 1913.96                       | 5.9232                                     | 7.820                          | 1678.18                       | 5.4931                                     |
| 523.15            | 4.313                          | 2913.47                       | 6.8122                                     | 4.705                          | 2679.00                       | 6.7336                                     | 5.180                          | 2444.06                       | 6.5604                                     | 5.765                          | 2208.83                       | 6.3313                                     | 6.495                          | 1973.81                       | 6.0404                                     | 7.405                          | 1740.13                       | 5.6145                                     |
| 548.15            | 4.096                          | 2964.67                       | 6.9078                                     | 4.469                          | 2732.65                       | 6.8337                                     | 4.920                          | 2500.20                       | 6.6652                                     | 5.475                          | 2267.48                       | 6.4408                                     | 6.168                          | 2034.95                       | 6.1546                                     | 7.035                          | 1803.68                       | 5.7331                                     |
| 573.15            | 3.902                          | 3016.08                       | 6.9995                                     | 4.257                          | 2786.76                       | 6.9303                                     | 4.687                          | 2557.04                       | 6.7666                                     | 5.215                          | 2327.07                       | 6.5471                                     | 5.874                          | 2097.28                       | 6.2658                                     | 6.701                          | 1868.67                       | 5.8491                                     |
| 598.15            | 3.726                          | 3067.73                       | 7.0877                                     | 4.065                          | 2841.32                       | 7.0234                                     | 4.475                          | 2614.54                       | 6.8648                                     | 4.979                          | 2387.53                       | 6.6504                                     | 5.608                          | 2160.68                       | 6.3740                                     | 6.400                          | 1934.94                       | 5.9622                                     |
| 623.15            | 3.566                          | 3119.64                       | 7.1727                                     | 3.891                          | 2896.31                       | 7.1135                                     | 4.283                          | 2672.63                       | 6.9599                                     | 4.765                          | 2448.74                       | 6.7506                                     | 5.367                          | 2225.00                       | 6.4794                                     | 6.126                          | 2002.30                       | 6.0725                                     |

**Table C2** Properties of methylamine/water mixture in the one-phase region–Continued

| <i>T</i><br>K           | water                          |                               |  | $\xi = 0.2$                    |                               |  | $\xi = 0.4$                    |                               |  | $\xi = 0.6$                    |                               |  | $\xi = 0.8$                    |                               |  | methylamine                    |                               |  |
|-------------------------|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|
|                         | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   |
|                         | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ |
| <b><i>P</i> = 15bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15                  |                                |                               |  |                                |                               |  | 963.52                         | -271.76                       | -0.4199                                    | 904.19                         | -204.96                       | -0.1336                                    | 819.61                         | -34.575                       | 0.3749                                     | 706.25                         | 188.48                        | 0.9301                                     |
| 248.15                  |                                |                               |  | 993.52                         | -143.75                       | -0.1474                                    | 958.49                         | -175.07                       | -0.0094                                    | 898.63                         | -97.677                       | 0.3221                                     | 811.52                         | 74.573                        | 0.8386                                     | 691.49                         | 291.86                        | 1.3693                                     |
| 273.15                  | 999.90                         | 1.3435                        | -0.0005                                    | 986.92                         | -56.860                       | 0.1861                                     | 952.73                         | -75.295                       | 0.3736                                     | 892.20                         | 10.212                        | 0.7363                                     | 802.04                         | 182.70                        | 1.2538                                     | 673.62                         | 394.00                        | 1.7615                                     |
| 298.15                  | 990.73                         | 82.547                        | 0.2838                                     | 979.41                         | 35.405                        | 0.5092                                     | 946.11                         | 27.532                        | 0.7338                                     | 884.72                         | 119.07                        | 1.1176                                     | 790.88                         | 290.54                        | 1.6315                                     | 651.64                         | 496.20                        | 2.1195                                     |
| 323.15                  | 980.40                         | 170.64                        | 0.5674                                     | 970.85                         | 132.71                        | 0.8225                                     | 938.45                         | 133.43                        | 1.0748                                     | 875.98                         | 229.26                        | 1.4725                                     | 777.59                         | 398.80                        | 1.9802                                     | 623.95                         | 599.97                        | 2.4536                                     |
| 348.15                  | 968.72                         | 265.16                        | 0.8490                                     | 961.01                         | 234.87                        | 1.1269                                     | 929.54                         | 242.49                        | 1.3998                                     | 865.65                         | 341.17                        | 1.8060                                     | 761.60                         | 508.23                        | 2.3064                                     | 19.525                         | 1325.47                       | 4.5538                                     |
| 373.15                  | 955.43                         | 365.80                        | 1.1281                                     | 949.65                         | 341.80                        | 1.4234                                     | 919.07                         | 354.89                        | 1.7115                                     | 853.32                         | 455.26                        | 2.1224                                     | 15.550                         | 1617.66                       | 5.1252                                     | 17.492                         | 1380.20                       | 4.7056                                     |
| 398.15                  | 940.24                         | 472.40                        | 1.4045                                     | 936.39                         | 453.55                        | 1.7132                                     | 906.63                         | 470.91                        | 2.0124                                     | 12.514                         | 1914.67                       | 5.5592                                     | 14.114                         | 1673.44                       | 5.2699                                     | 15.931                         | 1435.72                       | 4.8496                                     |
| 423.15                  | 922.72                         | 584.94                        | 1.6786                                     | 920.78                         | 570.34                        | 1.9976                                     | 891.63                         | 591.04                        | 2.3050                                     | 11.505                         | 1970.33                       | 5.6948                                     | 12.971                         | 1729.86                       | 5.4073                                     | 14.678                         | 1492.46                       | 4.9878                                     |
| 448.15                  | 902.34                         | 703.62                        | 1.9510                                     | 902.10                         | 687.36                        | 2.2664                                     | 9.578                          | 2266.09                       | 6.0467                                     | 10.672                         | 2026.28                       | 5.8233                                     | 12.030                         | 1786.88                       | 5.5382                                     | 13.637                         | 1550.22                       | 5.1204                                     |
| 473.15                  | 7.456                          | 2796.07                       | 6.3996                                     | 8.127                          | 2559.13                       | 6.3307                                     | 8.948                          | 2321.30                       | 6.1666                                     | 9.968                          | 2082.95                       | 5.9463                                     | 11.233                         | 1844.97                       | 5.6643                                     | 12.752                         | 1609.48                       | 5.2490                                     |
| 498.15                  | 7.003                          | 2848.36                       | 6.5073                                     | 7.635                          | 2613.11                       | 6.4419                                     | 8.406                          | 2377.05                       | 6.2814                                     | 9.361                          | 2140.52                       | 6.0649                                     | 10.548                         | 1904.33                       | 5.7866                                     | 11.986                         | 1670.42                       | 5.3745                                     |
| 523.15                  | 6.608                          | 2900.57                       | 6.6096                                     | 7.205                          | 2667.36                       | 6.5481                                     | 7.932                          | 2433.40                       | 6.3918                                     | 8.831                          | 2199.01                       | 6.1794                                     | 9.950                          | 1964.94                       | 5.9053                                     | 11.316                         | 1732.97                       | 5.4970                                     |
| 548.15                  | 6.259                          | 2952.80                       | 6.7071                                     | 6.826                          | 2721.92                       | 6.6500                                     | 7.514                          | 2490.37                       | 6.4981                                     | 8.364                          | 2258.41                       | 6.2903                                     | 9.422                          | 2026.75                       | 6.0207                                     | 10.723                         | 1797.03                       | 5.6166                                     |
| 573.15                  | 5.949                          | 3005.11                       | 6.8004                                     | 6.487                          | 2776.84                       | 6.7480                                     | 7.142                          | 2547.94                       | 6.6008                                     | 7.948                          | 2318.67                       | 6.3978                                     | 8.953                          | 2089.67                       | 6.1329                                     | 10.194                         | 1862.48                       | 5.7334                                     |
| 598.15                  | 5.670                          | 3057.56                       | 6.8900                                     | 6.184                          | 2832.12                       | 6.8424                                     | 6.807                          | 2606.08                       | 6.7001                                     | 7.575                          | 2379.71                       | 6.5021                                     | 8.531                          | 2153.59                       | 6.2421                                     | 9.718                          | 1929.16                       | 5.8473                                     |
| 623.15                  | 5.418                          | 3110.20                       | 6.9762                                     | 5.910                          | 2887.75                       | 6.9335                                     | 6.505                          | 2664.76                       | 6.7962                                     | 7.238                          | 2441.44                       | 6.6032                                     | 8.151                          | 2218.37                       | 6.3482                                     | 9.288                          | 1996.89                       | 5.9582                                     |
| <b><i>P</i> = 20bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |
| 223.15                  |                                |                               |  |                                |                               |  | 963.53                         | -271.27                       | -0.4200                                    | 904.20                         | -204.43                       | -0.1337                                    | 819.63                         | -34.015                       | 0.3747                                     | 706.32                         | 189.07                        | 0.9296                                     |
| 248.15                  |                                |                               |  | 993.53                         | -143.28                       | -0.1475                                    | 958.50                         | -174.58                       | -0.0095                                    | 898.64                         | -97.157                       | 0.3219                                     | 811.54                         | 75.123                        | 0.8383                                     | 691.60                         | 292.42                        | 1.3686                                     |
| 273.15                  | 999.92                         | 1.7963                        | -0.0006                                    | 986.93                         | -56.393                       | 0.1860                                     | 952.74                         | -74.808                       | 0.3735                                     | 892.21                         | 10.725                        | 0.7361                                     | 802.08                         | 183.24                        | 1.2534                                     | 673.79                         | 394.50                        | 1.7606                                     |
| 298.15                  | 990.75                         | 82.993                        | 0.2836                                     | 979.42                         | 35.866                        | 0.5090                                     | 946.12                         | 28.013                        | 0.7336                                     | 884.74                         | 119.57                        | 1.1174                                     | 790.93                         | 291.06                        | 1.6311                                     | 651.92                         | 496.62                        | 2.1183                                     |
| 323.15                  | 980.43                         | 171.08                        | 0.5672                                     | 970.86                         | 133.16                        | 0.8223                                     | 938.47                         | 133.90                        | 1.0746                                     | 876.00                         | 229.75                        | 1.4722                                     | 777.67                         | 399.29                        | 1.9797                                     | 624.42                         | 600.25                        | 2.4520                                     |
| 348.15                  | 968.75                         | 265.59                        | 0.8487                                     | 961.04                         | 235.31                        | 1.1267                                     | 929.56                         | 242.95                        | 1.3996                                     | 865.69                         | 341.64                        | 1.8057                                     | 761.71                         | 508.68                        | 2.3057                                     | 588.45                         | 707.58                        | 2.7719                                     |
| 373.15                  | 955.48                         | 366.21                        | 1.1278                                     | 949.68                         | 342.23                        | 1.4232                                     | 919.10                         | 355.33                        | 1.7112                                     | 853.38                         | 455.71                        | 2.1221                                     | 742.17                         | 620.09                        | 2.6148                                     | 24.863                         | 1365.14                       | 4.6010                                     |
| 398.15                  | 940.29                         | 472.78                        | 1.4041                                     | 936.44                         | 453.96                        | 1.7129                                     | 906.67                         | 471.33                        | 2.0121                                     | 12.804                         | 2129.50                       | 5.9513                                     | 14.426                         | 1894.42                       | 5.6856                                     | 16.339                         | 1662.52                       | 5.2872                                     |
| 423.15                  | 922.80                         | 585.29                        | 1.6781                                     | 920.84                         | 570.71                        | 1.9972                                     | 891.70                         | 591.42                        | 2.3046                                     | 11.494                         | 2365.07                       | 6.1555                                     | 13.557                         | 1955.88                       | 5.8059                                     | 15.375                         | 1725.72                       | 5.4109                                     |
| 448.15                  | 902.44                         | 703.93                        | 1.9505                                     | 902.19                         | 687.69                        | 2.2659                                     | 13.239                         | 2251.35                       | 5.9150                                     | 12.035                         | 2188.95                       | 6.0678                                     | 12.800                         | 2018.41                       | 5.9227                                     | 14.531                         | 1790.33                       | 5.5316                                     |
| 473.15                  | 878.47                         | 829.18                        | 2.2223                                     | 11.165                         | 2544.61                       | 6.1894                                     | 12.293                         | 2308.07                       | 6.0381                                     | 13.699                         | 2070.80                       | 5.8304                                     | 15.438                         | 1834.06                       | 5.5612                                     | 17.455                         | 1600.83                       | 5.1601                                     |
| 498.15                  | 9.583                          | 2833.75                       | 6.3558                                     | 10.440                         | 2599.97                       | 6.3034                                     | 11.494                         | 2365.07                       | 6.1555                                     | 12.804                         | 2129.50                       | 5.9513                                     | 14.426                         | 1894.42                       | 5.6856                                     | 16.339                         | 1662.52                       | 5.2872                                     |
| 523.15                  | 9.008                          | 2887.27                       | 6.4607                                     | 9.816                          | 2655.38                       | 6.4119                                     | 10.807                         | 2422.47                       | 6.2679                                     | 12.035                         | 2188.95                       | 6.0678                                     | 13.557                         | 1955.88                       | 5.8059                                     | 15.375                         | 1725.72                       | 5.4109                                     |
| 548.15                  | 8.507                          | 2940.62                       | 6.5603                                     | 9.272                          | 2710.94                       | 6.5157                                     | 10.207                         | 2480.33                       | 6.3760                                     | 11.364                         | 2249.16                       | 6.1802                                     | 12.800                         | 2018.41                       | 5.9227                                     | 14.531                         | 1790.33                       | 5.5316                                     |
| 573.15                  | 8.065                          | 2993.91                       | 6.6553                                     | 8.792                          | 2766.73                       | 6.6152                                     | 9.678                          | 2538.68                       | 6.4801                                     | 10.773                         | 2310.13                       | 6.2889                                     | 12.132                         | 2081.96                       | 6.0360                                     | 13.784                         | 1856.27                       | 5.6492                                     |
| 598.15                  | 7.672                          | 3047.23                       | 6.7464                                     | 8.364                          | 2822.77                       | 6.7109                                     | 9.207                          | 2597.51                       | 6.5805                                     | 10.246                         | 2371.79                       | 6.3942                                     | 11.538                         | 2146.43                       | 6.1461                                     | 13.117                         | 1923.37                       | 5.7638                                     |
| 623.15                  | 7.319                          | 3100.62                       | 6.8338                                     | 7.980                          | 2879.08                       | 6.8031                                     | 8.783                          | 2656.80                       | 6.6776                                     | 9.773                          | 2434.08                       | 6.4963                                     | 11.004                         | 2211.70                       | 6.2530                                     | 12.517                         | 1991.47                       | 5.8753                                     |







**Table C2** Properties of methylamine/water mixture in the one-phase region–Continued

| <i>T</i><br>K             | water                          |                               |  | $\xi = 0.2$                    |                               |  | $\xi = 0.4$                    |                               |  | $\xi = 0.6$                    |                               |  | $\xi = 0.8$                    |                               |  | methylamine                    |                               |  |  |
|---------------------------|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--|
|                           | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   |  |
|                           | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ |  |
| <b><i>P</i> = 100 bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |  |
| 223.15                    |                                |                               |  |                                |                               |  | 963.61                         | -263.32                       | -0.4217                                    | 904.31                         | -196.03                       | -0.1357                                    | 819.90                         | -25.045                       | 0.3712                                     | 707.44                         | 198.51                        | 0.9212                                     |  |
| 248.15                    |                                |                               |  | 993.66                         | -135.73                       | -0.1495                                    | 958.60                         | -166.70                       | -0.0113                                    | 898.79                         | -88.840                       | 0.3196                                     | 811.94                         | 83.935                        | 0.8341                                     | 693.31                         | 301.36                        | 1.3581                                     |  |
| 273.15                    | 1000.16                        | 9.0428                        | -0.0034                                    | 987.10                         | -48.916                       | 0.1837                                     | 952.88                         | -67.003                       | 0.3713                                     | 892.42                         | 18.935                        | 0.7334                                     | 802.65                         | 191.83                        | 1.2484                                     | 676.43                         | 402.70                        | 1.7472                                     |  |
| 298.15                    | 991.07                         | 90.126                        | 0.2804                                     | 979.65                         | 43.241                        | 0.5064                                     | 946.31                         | 35.714                        | 0.7311                                     | 885.03                         | 127.64                        | 1.1141                                     | 791.75                         | 299.34                        | 1.6250                                     | 656.09                         | 503.65                        | 2.1009                                     |  |
| 323.15                    | 980.84                         | 178.06                        | 0.5635                                     | 971.16                         | 140.40                        | 0.8192                                     | 938.74                         | 141.46                        | 1.0716                                     | 876.41                         | 237.61                        | 1.4683                                     | 778.87                         | 407.14                        | 1.9722                                     | 631.24                         | 605.32                        | 2.4283                                     |  |
| 348.15                    | 969.28                         | 272.38                        | 0.8445                                     | 961.44                         | 242.37                        | 1.1230                                     | 929.93                         | 250.32                        | 1.3960                                     | 866.27                         | 349.23                        | 1.8009                                     | 763.50                         | 515.87                        | 2.2963                                     | 600.28                         | 709.05                        | 2.7374                                     |  |
| 373.15                    | 956.17                         | 372.74                        | 1.1228                                     | 950.22                         | 349.04                        | 1.4188                                     | 919.61                         | 362.44                        | 1.7070                                     | 854.22                         | 462.90                        | 2.1162                                     | 744.92                         | 626.29                        | 2.6025                                     | 560.54                         | 816.75                        | 3.0361                                     |  |
| 398.15                    | 941.22                         | 478.97                        | 1.3983                                     | 937.18                         | 460.43                        | 1.7077                                     | 907.40                         | 478.07                        | 2.0069                                     | 839.72                         | 579.14                        | 2.4177                                     | 722.01                         | 739.32                        | 2.8957                                     | 506.80                         | 931.91                        | 3.3347                                     |  |
| 423.15                    | 924.03                         | 591.00                        | 1.6711                                     | 921.87                         | 576.71                        | 1.9909                                     | 892.75                         | 597.61                        | 2.2980                                     | 821.97                         | 698.67                        | 2.7088                                     | 693.04                         | 856.32                        | 3.1806                                     | 425.99                         | 1063.76                       | 3.6555                                     |  |
| 448.15                    | 904.13                         | 708.97                        | 1.9419                                     | 903.66                         | 692.99                        | 2.2579                                     | 874.85                         | 711.50                        | 2.5596                                     | 799.62                         | 809.24                        | 2.9629                                     | 654.54                         | 966.75                        | 3.4343                                     | 267.23                         | 1248.74                       | 4.0791                                     |  |
| 473.15                    | 880.81                         | 833.24                        | 2.2117                                     | 881.57                         | 814.18                        | 2.5210                                     | 852.26                         | 829.24                        | 2.8152                                     | 770.07                         | 924.24                        | 3.2125                                     | 597.86                         | 1089.45                       | 3.7005                                     | 157.29                         | 1413.47                       | 4.4381                                     |  |
| 498.15                    | 853.12                         | 964.56                        | 2.4821                                     | 854.14                         | 943.78                        | 2.7878                                     | 822.71                         | 957.35                        | 3.0789                                     | 728.43                         | 1053.97                       | 3.4795                                     | 490.41                         | 1259.63                       | 4.0502                                     | 124.19                         | 1512.47                       | 4.6422                                     |  |
| 523.15                    | 819.57                         | 1104.33                       | 2.7558                                     | 818.95                         | 1084.27                       | 3.0629                                     | 781.78                         | 1100.48                       | 3.3591                                     | 111.67                         | 1943.43                       | 5.1626                                     | 113.05                         | 1760.00                       | 5.0408                                     | 106.22                         | 1597.42                       | 4.8087                                     |  |
| 548.15                    | 777.68                         | 1255.21                       | 3.0374                                     | 771.29                         | 1240.83                       | 3.3551                                     | 79.701                         | 2265.09                       | 5.4782                                     | 86.782                         | 2058.24                       | 5.3774                                     | 93.432                         | 1856.85                       | 5.2218                                     | 94.232                         | 1677.19                       | 4.9577                                     |  |
| 573.15                    | 722.66                         | 1423.02                       | 3.3366                                     | 63.065                         | 2562.50                       | 5.6872                                     | 68.127                         | 2357.25                       | 5.6427                                     | 74.864                         | 2147.33                       | 5.5364                                     | 81.913                         | 1941.67                       | 5.3732                                     | 85.404                         | 1754.63                       | 5.0958                                     |  |
| 598.15                    | 52.482                         | 2844.56                       | 5.7722                                     | 55.926                         | 2645.19                       | 5.8285                                     | 60.764                         | 2438.53                       | 5.7816                                     | 67.003                         | 2228.29                       | 5.6747                                     | 73.854                         | 2021.53                       | 5.5096                                     | 78.511                         | 1830.93                       | 5.2261                                     |  |
| 623.15                    | 47.432                         | 2921.63                       | 5.8984                                     | 50.843                         | 2721.07                       | 5.9528                                     | 55.402                         | 2514.64                       | 5.9062                                     | 61.192                         | 2305.24                       | 5.8007                                     | 67.726                         | 2098.81                       | 5.6362                                     | 72.916                         | 1906.65                       | 5.3501                                     |  |
| <b><i>P</i> = 125 bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |  |
| 223.15                    |                                |                               |  |                                |                               |  | 963.63                         | -260.84                       | -0.4222                                    | 904.34                         | -193.41                       | -0.1364                                    | 819.99                         | -22.241                       | 0.3701                                     | 707.78                         | 201.47                        | 0.9186                                     |  |
| 248.15                    |                                |                               |  | 993.70                         | -133.37                       | -0.1501                                    | 958.63                         | -164.23                       | -0.0119                                    | 898.84                         | -86.240                       | 0.3188                                     | 812.06                         | 86.691                        | 0.8328                                     | 693.82                         | 304.17                        | 1.3549                                     |  |
| 273.15                    | 1000.24                        | 11.308                        | -0.0043                                    | 987.15                         | -46.579                       | 0.1829                                     | 952.93                         | -64.563                       | 0.3707                                     | 892.48                         | 21.502                        | 0.7325                                     | 802.82                         | 194.52                        | 1.2469                                     | 677.21                         | 405.30                        | 1.7433                                     |  |
| 298.15                    | 991.17                         | 92.356                        | 0.2795                                     | 979.72                         | 45.547                        | 0.5055                                     | 946.37                         | 38.122                        | 0.7303                                     | 885.12                         | 130.16                        | 1.1131                                     | 792.00                         | 301.94                        | 1.6232                                     | 657.29                         | 505.92                        | 2.0957                                     |  |
| 323.15                    | 980.96                         | 180.25                        | 0.5624                                     | 971.25                         | 142.67                        | 0.8182                                     | 938.82                         | 143.83                        | 1.0707                                     | 876.54                         | 240.08                        | 1.4671                                     | 779.24                         | 409.60                        | 1.9699                                     | 633.15                         | 607.08                        | 2.4215                                     |  |
| 348.15                    | 969.45                         | 274.50                        | 0.8432                                     | 961.56                         | 244.58                        | 1.1219                                     | 930.04                         | 252.63                        | 1.3949                                     | 866.45                         | 351.60                        | 1.7995                                     | 764.04                         | 518.15                        | 2.2934                                     | 603.42                         | 709.94                        | 2.7281                                     |  |
| 373.15                    | 956.39                         | 374.79                        | 1.1213                                     | 950.39                         | 351.17                        | 1.4175                                     | 919.77                         | 364.66                        | 1.7056                                     | 854.48                         | 465.15                        | 2.1144                                     | 745.73                         | 628.28                        | 2.5989                                     | 566.01                         | 816.03                        | 3.0223                                     |  |
| 398.15                    | 941.50                         | 480.91                        | 1.3965                                     | 937.41                         | 462.46                        | 1.7061                                     | 907.62                         | 480.18                        | 2.0052                                     | 840.10                         | 581.22                        | 2.4155                                     | 723.29                         | 740.86                        | 2.8908                                     | 517.35                         | 927.72                        | 3.3119                                     |  |
| 423.15                    | 924.41                         | 592.79                        | 1.6690                                     | 922.19                         | 578.60                        | 1.9890                                     | 893.07                         | 599.56                        | 2.2960                                     | 822.54                         | 700.48                        | 2.7059                                     | 695.13                         | 857.08                        | 3.1739                                     | 450.75                         | 1049.60                       | 3.6086                                     |  |
| 448.15                    | 904.64                         | 710.56                        | 1.9393                                     | 904.11                         | 694.66                        | 2.2555                                     | 875.33                         | 713.19                        | 2.5570                                     | 800.54                         | 810.60                        | 2.9589                                     | 658.27                         | 965.95                        | 3.4240                                     | 352.98                         | 1184.08                       | 3.9172                                     |  |
| 473.15                    | 881.53                         | 834.54                        | 2.2085                                     | 882.23                         | 815.54                        | 2.5179                                     | 853.01                         | 830.52                        | 2.8117                                     | 771.63                         | 924.78                        | 3.2067                                     | 605.77                         | 1084.73                       | 3.6817                                     | 238.08                         | 1338.42                       | 4.2524                                     |  |
| 498.15                    | 854.14                         | 965.43                        | 2.4780                                     | 855.15                         | 944.63                        | 2.7837                                     | 823.96                         | 957.90                        | 3.0739                                     | 731.43                         | 1052.77                       | 3.4702                                     | 518.42                         | 1236.03                       | 3.9929                                     | 176.46                         | 1458.97                       | 4.5010                                     |  |
| 523.15                    | 821.07                         | 1104.51                       | 2.7503                                     | 820.58                         | 1084.22                       | 3.0570                                     | 784.12                         | 1099.54                       | 3.3512                                     | 669.31                         | 1205.07                       | 3.7682                                     | 207.56                         | 1627.02                       | 4.7542                                     | 145.42                         | 1555.25                       | 4.6897                                     |  |
| 548.15                    | 780.05                         | 1254.19                       | 3.0297                                     | 774.25                         | 1238.96                       | 3.3458                                     | 724.05                         | 1265.70                       | 3.6612                                     | 143.37                         | 1948.41                       | 5.1352                                     | 137.93                         | 1787.79                       | 5.0555                                     | 126.19                         | 1641.82                       | 4.8514                                     |  |
| 573.15                    | 726.79                         | 1419.58                       | 3.3246                                     | 706.02                         | 1420.73                       | 3.6698                                     | 101.70                         | 2272.74                       | 5.4424                                     | 108.60                         | 2078.34                       | 5.3674                                     | 114.37                         | 1889.55                       | 5.2371                                     | 112.71                         | 1723.89                       | 4.9978                                     |  |
| 598.15                    | 650.76                         | 1614.53                       | 3.6573                                     | 80.063                         | 2569.69                       | 5.6395                                     | 85.480                         | 2375.08                       | 5.6173                                     | 92.941                         | 2174.24                       | 5.5313                                     | 100.25                         | 1978.44                       | 5.3890                                     | 102.55                         | 1803.61                       | 5.1340                                     |  |
| 623.15                    | 66.550                         | 2848.61                       | 5.7096                                     | 70.182                         | 2660.28                       | 5.7880                                     | 75.681                         | 2462.31                       | 5.7602                                     | 82.837                         | 2259.84                       | 5.6715                                     | 90.344                         | 2061.62                       | 5.5252                                     | 94.517                         | 1881.99                       | 5.2623                                     |  |

**Table C2** Properties of methylamine/water mixture in the one-phase region–Continued

| <i>T</i><br>K             | water                          |                               |  | $\xi = 0.2$                    |                               |  | $\xi = 0.4$                    |                               |  | $\xi = 0.6$                    |                               |  | $\xi = 0.8$                    |                               |  | methylamine                    |                               |  |  |
|---------------------------|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--------------------------------|-------------------------------|--|--|
|                           | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   | $\rho$                         | <i>h</i>                      | <i>s</i>                                   |  |
|                           | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ | $\frac{\text{kg}}{\text{m}^3}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}\cdot\text{K}}$ |  |
| <b><i>P</i> = 150 bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |  |
| 223.15                    |                                |                               |  |                                |                               |  | 963.66                         | -258.36                       | -0.4227                                    | 904.38                         | -190.79                       | -0.1370                                    | 820.07                         | -19.435                       | 0.3690                                     | 708.11                         | 204.43                        | 0.9160                                     |  |
| 248.15                    |                                |                               |  | 993.74                         | -131.01                       | -0.1507                                    | 958.67                         | -161.77                       | -0.0125                                    | 898.88                         | -83.640                       | 0.3181                                     | 812.18                         | 89.449                        | 0.8315                                     | 694.32                         | 307.00                        | 1.3518                                     |  |
| 273.15                    | 1000.32                        | 13.574                        | -0.0051                                    | 987.20                         | -44.241                       | 0.1822                                     | 952.97                         | -62.123                       | 0.3700                                     | 892.55                         | 24.069                        | 0.7316                                     | 802.99                         | 197.21                        | 1.2453                                     | 677.97                         | 407.92                        | 1.7393                                     |  |
| 298.15                    | 991.26                         | 94.587                        | 0.2785                                     | 979.79                         | 47.853                        | 0.5047                                     | 946.43                         | 40.530                        | 0.7295                                     | 885.21                         | 132.68                        | 1.1121                                     | 792.25                         | 304.54                        | 1.6213                                     | 658.46                         | 508.24                        | 2.0907                                     |  |
| 323.15                    | 981.09                         | 182.43                        | 0.5613                                     | 971.35                         | 144.93                        | 0.8173                                     | 938.90                         | 146.19                        | 1.0698                                     | 876.66                         | 242.54                        | 1.4659                                     | 779.60                         | 412.08                        | 1.9676                                     | 634.97                         | 608.92                        | 2.4150                                     |  |
| 348.15                    | 969.61                         | 276.63                        | 0.8419                                     | 961.68                         | 246.79                        | 1.1208                                     | 930.15                         | 254.93                        | 1.3938                                     | 866.63                         | 353.98                        | 1.7980                                     | 764.57                         | 520.44                        | 2.2906                                     | 606.35                         | 710.99                        | 2.7192                                     |  |
| 373.15                    | 956.60                         | 376.83                        | 1.1198                                     | 950.55                         | 353.31                        | 1.4162                                     | 919.92                         | 366.89                        | 1.7043                                     | 854.74                         | 467.41                        | 2.1126                                     | 746.52                         | 630.29                        | 2.5953                                     | 570.95                         | 815.71                        | 3.0096                                     |  |
| 398.15                    | 941.78                         | 482.85                        | 1.3947                                     | 937.63                         | 464.50                        | 1.7045                                     | 907.84                         | 482.30                        | 2.0036                                     | 840.48                         | 583.31                        | 2.4132                                     | 724.52                         | 742.43                        | 2.8861                                     | 526.24                         | 924.73                        | 3.2923                                     |  |
| 423.15                    | 924.79                         | 594.59                        | 1.6668                                     | 922.50                         | 580.49                        | 1.9870                                     | 893.39                         | 601.52                        | 2.2940                                     | 823.11                         | 702.31                        | 2.7031                                     | 697.12                         | 857.94                        | 3.1675                                     | 468.44                         | 1040.62                       | 3.5745                                     |  |
| 448.15                    | 905.15                         | 712.16                        | 1.9367                                     | 904.55                         | 696.35                        | 2.2531                                     | 875.80                         | 714.90                        | 2.5545                                     | 801.43                         | 811.99                        | 2.9551                                     | 661.74                         | 965.42                        | 3.4144                                     | 392.44                         | 1158.48                       | 3.8451                                     |  |
| 473.15                    | 882.23                         | 835.86                        | 2.2053                                     | 882.87                         | 816.91                        | 2.5148                                     | 853.75                         | 831.82                        | 2.8082                                     | 773.13                         | 925.39                        | 3.2012                                     | 612.67                         | 1080.98                       | 3.6651                                     | 301.78                         | 1288.56                       | 4.1275                                     |  |
| 498.15                    | 855.13                         | 966.33                        | 2.4739                                     | 856.13                         | 945.50                        | 2.7795                                     | 825.18                         | 958.50                        | 3.0691                                     | 734.25                         | 1051.78                       | 3.4614                                     | 537.14                         | 1221.27                       | 3.9538                                     | 229.82                         | 1411.90                       | 4.3817                                     |  |
| 523.15                    | 822.54                         | 1104.74                       | 2.7449                                     | 822.17                         | 1084.23                       | 3.0512                                     | 786.36                         | 1098.76                       | 3.3436                                     | 675.85                         | 1199.82                       | 3.7511                                     | 385.28                         | 1434.64                       | 4.3706                                     | 186.71                         | 1516.21                       | 4.5861                                     |  |
| 548.15                    | 782.34                         | 1253.30                       | 3.0222                                     | 777.07                         | 1237.29                       | 3.3368                                     | 729.01                         | 1261.41                       | 3.6471                                     | 565.95                         | 1402.30                       | 4.1285                                     | 201.33                         | 1703.57                       | 4.8743                                     | 159.75                         | 1608.73                       | 4.7590                                     |  |
| 573.15                    | 730.70                         | 1416.46                       | 3.3132                                     | 712.11                         | 1414.71                       | 3.6531                                     | 178.48                         | 2111.24                       | 5.1265                                     | 159.53                         | 1987.72                       | 5.1758                                     | 153.90                         | 1833.26                       | 5.1060                                     | 141.19                         | 1695.07                       | 4.9130                                     |  |
| 598.15                    | 658.89                         | 1605.55                       | 3.6359                                     | 117.17                         | 2466.84                       | 5.4239                                     | 119.09                         | 2297.91                       | 5.4467                                     | 125.45                         | 2113.42                       | 5.3908                                     | 130.46                         | 1934.00                       | 5.2781                                     | 127.45                         | 1777.99                       | 5.0546                                     |  |
| 623.15                    | 93.290                         | 2756.27                       | 5.5102                                     | 94.948                         | 2589.43                       | 5.6249                                     | 100.38                         | 2404.21                       | 5.6209                                     | 108.11                         | 2211.53                       | 5.5516                                     | 115.36                         | 2024.16                       | 5.4259                                     | 116.75                         | 1858.88                       | 5.1871                                     |  |
| <b><i>P</i> = 200 bar</b> |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |                                |                               |  |  |
| 223.15                    |                                |                               |  |                                |                               |  | 963.70                         | -253.40                       | -0.4237                                    | 904.44                         | -185.54                       | -0.1382                                    | 820.24                         | -13.822                       | 0.3668                                     | 708.76                         | 210.37                        | 0.9111                                     |  |
| 248.15                    |                                |                               |  | 993.82                         | -126.28                       | -0.1520                                    | 958.73                         | -156.84                       | -0.0137                                    | 898.98                         | -78.439                       | 0.3167                                     | 812.42                         | 94.968                        | 0.8290                                     | 695.30                         | 312.68                        | 1.3457                                     |  |
| 273.15                    | 1000.47                        | 18.106                        | -0.0068                                    | 987.31                         | -39.566                       | 0.1808                                     | 953.06                         | -57.242                       | 0.3687                                     | 892.68                         | 29.206                        | 0.7299                                     | 803.33                         | 202.60                        | 1.2423                                     | 679.44                         | 413.21                        | 1.7317                                     |  |
| 298.15                    | 991.46                         | 99.051                        | 0.2765                                     | 979.93                         | 52.466                        | 0.5031                                     | 946.55                         | 45.347                        | 0.7280                                     | 885.39                         | 137.73                        | 1.1101                                     | 792.73                         | 309.76                        | 1.6176                                     | 660.67                         | 512.96                        | 2.0811                                     |  |
| 323.15                    | 981.34                         | 186.81                        | 0.5590                                     | 971.53                         | 149.46                        | 0.8154                                     | 939.06                         | 150.93                        | 1.0679                                     | 876.91                         | 247.47                        | 1.4635                                     | 780.30                         | 417.04                        | 1.9632                                     | 638.37                         | 612.77                        | 2.4026                                     |  |
| 348.15                    | 969.93                         | 280.88                        | 0.8393                                     | 961.93                         | 251.21                        | 1.1185                                     | 930.38                         | 259.55                        | 1.3917                                     | 866.98                         | 358.75                        | 1.7951                                     | 765.60                         | 525.04                        | 2.2851                                     | 611.70                         | 713.50                        | 2.7028                                     |  |
| 373.15                    | 957.02                         | 380.93                        | 1.1168                                     | 950.88                         | 357.58                        | 1.4135                                     | 920.23                         | 371.35                        | 1.7017                                     | 855.24                         | 471.95                        | 2.1091                                     | 748.06                         | 634.37                        | 2.5883                                     | 579.58                         | 815.99                        | 2.9871                                     |  |
| 398.15                    | 942.34                         | 486.74                        | 1.3912                                     | 938.08                         | 468.57                        | 1.7014                                     | 908.27                         | 486.54                        | 2.0005                                     | 841.21                         | 587.51                        | 2.4088                                     | 726.86                         | 745.71                        | 2.8771                                     | 540.71                         | 921.14                        | 3.2598                                     |  |
| 423.15                    | 925.53                         | 598.21                        | 1.6626                                     | 923.11                         | 584.29                        | 1.9832                                     | 894.02                         | 605.45                        | 2.2901                                     | 824.21                         | 706.01                        | 2.6975                                     | 700.85                         | 859.93                        | 3.1552                                     | 493.73                         | 1029.87                       | 3.5246                                     |  |
| 448.15                    | 906.15                         | 715.39                        | 1.9316                                     | 905.42                         | 699.74                        | 2.2483                                     | 876.73                         | 718.34                        | 2.5494                                     | 803.15                         | 814.87                        | 2.9476                                     | 668.00                         | 965.00                        | 3.3967                                     | 437.65                         | 1133.25                       | 3.7621                                     |  |
| 473.15                    | 883.61                         | 838.54                        | 2.1989                                     | 884.13                         | 819.70                        | 2.5087                                     | 855.18                         | 834.49                        | 2.8015                                     | 775.98                         | 926.81                        | 3.1906                                     | 624.31                         | 1075.52                       | 3.6365                                     | 373.80                         | 1240.75                       | 3.9954                                     |  |
| 498.15                    | 857.08                         | 968.20                        | 2.4659                                     | 858.03                         | 947.34                        | 2.7715                                     | 827.52                         | 959.85                        | 3.0596                                     | 739.43                         | 1050.38                       | 3.4449                                     | 563.06                         | 1202.61                       | 3.8981                                     | 311.54                         | 1351.01                       | 4.2225                                     |  |
| 523.15                    | 825.38                         | 1105.36                       | 2.7345                                     | 825.20                         | 1084.46                       | 3.0400                                     | 790.54                         | 1097.58                       | 3.3293                                     | 686.97                         | 1191.62                       | 3.7214                                     | 471.57                         | 1357.62                       | 4.2014                                     | 261.18                         | 1456.31                       | 4.4288                                     |  |
| 548.15                    | 786.69                         | 1251.83                       | 3.0079                                     | 782.34                         | 1234.47                       | 3.3200                                     | 737.78                         | 1254.32                       | 3.6218                                     | 602.15                         | 1366.49                       | 4.0476                                     | 344.38                         | 1549.55                       | 4.5596                                     | 224.23                         | 1554.11                       | 4.6115                                     |  |
| 573.15                    | 737.92                         | 1411.07                       | 3.2919                                     | 722.80                         | 1404.71                       | 3.6235                                     | 652.15                         | 1448.54                       | 3.9679                                     | 414.50                         | 1651.16                       | 4.5540                                     | 248.70                         | 1719.96                       | 4.8640                                     | 197.26                         | 1645.85                       | 4.7752                                     |  |
| 598.15                    | 672.86                         | 1590.86                       | 3.5988                                     | 628.27                         | 1617.33                       | 3.9862                                     | 381.60                         | 1869.00                       | 4.6816                                     | 220.93                         | 1964.51                       | 5.0911                                     | 199.74                         | 1846.25                       | 5.0798                                     | 176.96                         | 1733.47                       | 4.9249                                     |  |
| 623.15                    | 573.54                         | 1816.23                       | 3.9675                                     | 190.29                         | 2366.23                       | 5.2043                                     | 171.73                         | 2261.24                       | 5.3297                                     | 171.62                         | 2106.57                       | 5.3241                                     | 170.90                         | 1951.43                       | 5.2522                                     | 161.15                         | 1818.30                       | 5.0638                                     |  |

