

## Typical Physical Properties of Aqueous Solutions of Inhibited Ethylene Glycol (freezing and boiling points)

| Wt. %<br>Ethylene<br>Glycol | Vol. %<br>Ethylene<br>Glycol | Wt. %<br>HTF-EG | Vol. %<br>HTF-EG | Freezing<br>Point<br>°F | Boiling Point<br>°F @<br>760 mm Hg | Refractive<br>Index<br>72°F |
|-----------------------------|------------------------------|-----------------|------------------|-------------------------|------------------------------------|-----------------------------|
| 0.0                         | 0.0                          | 0.0             | 0.0              | 32.0                    | 212                                | 1.3328                      |
| 5.0                         | 4.4                          | 5.2             | 4.6              | 29.4                    | 213                                | 1.3378                      |
| 10.0                        | 8.9                          | 10.5            | 9.3              | 26.2                    | 214                                | 1.3428                      |
| 15.0                        | 13.6                         | 15.7            | 14.2             | 22.2                    | 215                                | 1.3478                      |
| 20.0                        | 18.1                         | 20.9            | 19.0             | 17.9                    | 216                                | 1.3530                      |
| 21.0                        | 19.2                         | 22.0            | 20.1             | 16.8                    | 216                                | 1.3540                      |
| 22.0                        | 20.1                         | 23.0            | 21.0             | 15.9                    | 216                                | 1.3551                      |
| 23.0                        | 21.0                         | 24.1            | 22.0             | 14.9                    | 217                                | 1.3561                      |
| 24.0                        | 22.0                         | 25.1            | 23.0             | 13.7                    | 217                                | 1.3572                      |
| 25.0                        | 22.9                         | 26.2            | 24.0             | 12.7                    | 218                                | 1.3582                      |
| 26.0                        | 23.9                         | 27.2            | 25.0             | 11.4                    | 218                                | 1.3593                      |
| 27.0                        | 24.8                         | 28.3            | 26.0             | 10.4                    | 218                                | 1.3603                      |
| 28.0                        | 25.8                         | 29.3            | 27.0             | 9.2                     | 219                                | 1.3614                      |
| 29.0                        | 26.7                         | 30.4            | 28.0             | 8.0                     | 219                                | 1.3624                      |
| 30.0                        | 27.7                         | 31.4            | 29.0             | 6.7                     | 220                                | 1.3635                      |
| 31.0                        | 28.7                         | 32.5            | 30.2             | 5.4                     | 220                                | 1.3646                      |
| 32.0                        | 29.6                         | 33.5            | 31.0             | 4.2                     | 220                                | 1.3656                      |
| 33.0                        | 30.6                         | 34.6            | 32.0             | 2.9                     | 220                                | 1.3667                      |
| 34.0                        | 31.6                         | 35.6            | 33.1             | 1.4                     | 220                                | 1.3678                      |
| 35.0                        | 32.6                         | 36.6            | 34.1             | -0.2                    | 221                                | 1.3688                      |
| 36.0                        | 33.5                         | 37.7            | 35.1             | -1.5                    | 221                                | 1.3699                      |
| 37.0                        | 34.5                         | 38.7            | 36.1             | -3.0                    | 221                                | 1.3709                      |
| 38.0                        | 35.5                         | 39.8            | 37.2             | -4.5                    | 221                                | 1.3720                      |
| 39.0                        | 36.5                         | 40.8            | 38.2             | -6.4                    | 221                                | 1.3730                      |
| 40.0                        | 37.5                         | 41.9            | 39.3             | -8.1                    | 222                                | 1.3741                      |
| 41.0                        | 38.5                         | 42.9            | 40.3             | -9.8                    | 222                                | 1.3752                      |
| 42.0                        | 39.5                         | 44.0            | 41.4             | -11.7                   | 222                                | 1.3763                      |
| 43.0                        | 40.5                         | 45.0            | 42.4             | -13.5                   | 223                                | 1.3774                      |
| 44.0                        | 41.5                         | 46.1            | 43.5             | -15.5                   | 223                                | 1.3785                      |
| 45.0                        | 42.5                         | 47.1            | 44.5             | -17.5                   | 224                                | 1.3796                      |
| 46.0                        | 43.5                         | 48.2            | 45.5             | -19.8                   | 224                                | 1.3807                      |
| 47.0                        | 44.5                         | 49.2            | 46.6             | -21.6                   | 224                                | 1.3817                      |
| 48.0                        | 45.5                         | 50.2            | 47.6             | -23.9                   | 224                                | 1.3828                      |
| 49.0                        | 46.6                         | 51.3            | 48.8             | -26.7                   | 224                                | 1.3838                      |
| 50.0                        | 47.6                         | 52.4            | 49.8             | -28.9                   | 225                                | 1.3849                      |
| 51.0                        | 48.6                         | 53.4            | 50.9             | -31.2                   | 225                                | 1.3859                      |
| 52.0                        | 49.6                         | 54.5            | 51.9             | -33.6                   | 225                                | 1.3869                      |
| 53.0                        | 50.6                         | 55.5            | 53.0             | -36.2                   | 226                                | 1.3879                      |
| 54.0                        | 51.6                         | 56.4            | 54.0             | -38.8                   | 226                                | 1.3890                      |
| 55.0                        | 52.7                         | 57.6            | 55.2             | -42.0                   | 227                                | 1.3900                      |
| 56.0                        | 53.7                         | 58.6            | 56.2             | -44.7                   | 227                                | 1.3910                      |
| 57.0                        | 54.7                         | 59.7            | 57.3             | -47.5                   | 228                                | 1.3921                      |
| 58.0                        | 55.7                         | 60.7            | 58.3             | -50.0                   | 228                                | 1.3931                      |
| 59.0                        | 56.8                         | 61.8            | 59.5             | -52.7                   | 229                                | 1.3942                      |
| 60.0                        | 57.8                         | 62.8            | 60.5             | -54.9                   | 230                                | 1.3952                      |
| 65.0                        | 62.8                         | 68.0            | 65.8             | *                       | 235                                | 1.4003                      |
| 70.0                        | 68.3                         | 73.3            | 71.5             | *                       | 242                                | 1.4055                      |
| 75.0                        | 73.6                         | 78.5            | 77.1             | *                       | 248                                | 1.4107                      |
| 80.0                        | 78.9                         | 83.8            | 82.6             | -52.2                   | 255                                | 1.4159                      |
| 85.0                        | 84.3                         | 89.0            | 88.3             | -34.5                   | 273                                | 1.4208                      |
| 90.0                        | 89.7                         | 94.2            | 93.9             | -21.6                   | 285                                | 1.4255                      |
| 95.0                        | 95.0                         | 99.5            | 99.5             | -3.0                    | 317                                | 1.4300                      |

\*Freeze points are below -60°F.

Typical properties are not to be confused with specifications. For additional protection, select a temperature in the above table that is at least 5°F lower than the expected lowest ambient temperature. When using solutions of less than 30% glycol, adjust inhibitor levels