**supplemental material**

**Thermodynamic Parameters of Amitriptyline Hydrochloride−Additives at Cloud Point: Effects of Ethanol−Water Mixed Media**

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**Figure S1.** (a) Plot of ΔsG0/T vs. 1/T for AMT in presence of KCl in 15% EtOH−WR mixed media at different pH values, (b) Plots of TΔsS0 vs. mole fraction (χs) of KCl in 15% EtOH−WR mixed media at different pH values.



**Figure S2.** Plots of sG0/T vs. 1/T of AMT in presence of conventional surfactants (TTAB and CTAB) and gemini surfactants (14-4-14, 14-5-14 and 14-6-14) at different compositions of EtOHWR mixed media.

**Table S1.** Thermodynamic parameters (ΔsG0, ΔsH0 and TΔsS0) for clouding of AMT in pure WR in presence of inorganic salts (KF, KCl, KBr, LiCl, NaCl and NH4Cl).[a]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mole fraction of additives****(χs × 103)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** | **Mole fraction of additives****(χs × 103)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** |
| **KF** | R² = 0.978 | **KCl** | R² = 0.995 |
| 0.47 | 19.14 | 191.39 | 172.24 | 0.46 | 19.26 | 91.84 | 72.58 |
| 0.94 | 17.47 | 191.39 | 173.91 | 0.91 | 17.77 | 91.84 | 74.07 |
| 1.42 | 16.53 | 191.39 | 174.86 | 1.37 | 16.88 | 91.84 | 74.96 |
| 1.89 | 15.85 | 191.39 | 175.54 | 1.82 | 16.27 | 91.84 | 75.57 |
| 2.36 | 15.34 | 191.39 | 176.05 | 2.28 | 15.82 | 91.84 | 76.02 |
| 2.83 | 14.94 | 191.39 | 176.45 | 2.73 | 15.40 | 91.84 | 76.44 |
| 3.30 | 14.61 | 191.39 | 176.78 | 3.19 | 15.09 | 91.84 | 76.75 |
| 3.77 | 14.30 | 191.39 | 177.09 | 3.64 | 14.79 | 91.84 | 77.05 |
| 4.70 | 13.76 | 191.39 | 177.62 | 4.54 | 14.30 | 91.84 | 77.54 |
| 5.64 | 13.34 | 191.39 | 178.05 | 5.45 | 13.91 | 91.84 | 77.93 |
| 6.57 | 12.97 | 191.39 | 178.41 | 6.35 | 13.54 | 91.84 | 78.30 |
| 7.50 | 12.65 | 191.39 | 178.74 | 7.25 | 13.26 | 91.84 | 78.58 |
| 8.43 | 12.36 | 191.39 | 179.03 | 8.15 | 13.00 | 91.84 | 78.84 |
| 9.36 | 12.10 | 191.39 | 179.29 | 9.05 | 12.75 | 91.84 | 79.09 |
| 10.29 | 11.86 | 191.39 | 179.53 | 9.94 | 12.53 | 91.84 | 79.31 |
| 11.21 | 11.64 | 191.39 | 179.75 | 10.84 | 12.34 | 91.84 | 79.50 |
| 13.06 | 11.29 | 191.39 | 180.10 | 11.73 | 12.15 | 91.84 | 79.69 |
| 14.90 | 10.95 | 191.39 | 180.44 | 12.62 | 11.97 | 91.84 | 79.87 |
| 16.73 | 10.65 | 191.39 | 180.74 | 13.51 | 11.81 | 91.84 | 80.03 |
| **KBr** | R² = 0.984 | **LiCl** | R² = 0.982 |
| 0.09 | 23.25 | 157.26 | 134.00 | 0.48 | 19.19 | 76.64 | 57.45 |
| 0.19 | 21.65 | 157.26 | 135.61 | 0.96 | 17.67 | 76.64 | 58.97 |
| 0.28 | 20.74 | 157.26 | 136.51 | 1.44 | 16.80 | 76.64 | 59.84 |
| 0.38 | 20.11 | 157.26 | 137.15 | 1.91 | 16.19 | 76.64 | 60.46 |
| 0.47 | 19.60 | 157.26 | 137.66 | 2.39 | 15.71 | 76.64 | 60.93 |
| 0.56 | 19.18 | 157.26 | 138.08 | 2.87 | 15.35 | 76.64 | 61.29 |
| 0.66 | 18.84 | 157.26 | 138.42 | 3.34 | 15.04 | 76.64 | 61.60 |
| 0.75 | 18.54 | 157.26 | 138.71 | 3.82 | 14.74 | 76.64 | 61.90 |
| 0.85 | 18.28 | 157.26 | 138.98 | 4.30 | 14.52 | 76.64 | 62.12 |
| 0.94 | 18.06 | 157.26 | 139.20 | 4.77 | 14.31 | 76.64 | 62.33 |
| 1.03 | 17.84 | 157.26 | 139.41 | 5.25 | 14.11 | 76.64 | 62.53 |
| 1.13 | 17.64 | 157.26 | 139.62 | 5.72 | 13.96 | 76.64 | 62.68 |
| 1.31 | 17.28 | 157.26 | 139.97 | 6.67 | 13.62 | 76.64 | 63.02 |
| 1.50 | 16.98 | 157.26 | 140.28 | 7.61 | 13.31 | 76.64 | 63.33 |
| 1.69 | 16.72 | 157.26 | 140.54 | 8.56 | 13.05 | 76.64 | 63.59 |
| 1.88 | 16.48 | 157.26 | 140.78 | 9.50 | 12.84 | 76.64 | 63.80 |
| 2.06 | 16.25 | 157.26 | 141.01 | 11.37 | 12.38 | 76.64 | 64.26 |
|  |  |  |  | 13.24 | 12.02 | 76.64 | 64.62 |
|  |  |  |  | 14.18 | 11.88 | 76.64 | 64.76 |
| **NaCl** | R² = 0.986 | **NH4Cl** | R² = 0.979 |
| 0.46 | 19.31 | 86.10 | 66.79 | 0.45 | 19.46 | 71.37 | 51.92 |
| 0.92 | 17.78 | 86.10 | 68.32 | 0.90 | 17.91 | 71.37 | 53.46 |
| 1.37 | 16.90 | 86.10 | 69.20 | 1.35 | 17.07 | 71.37 | 54.31 |
| 1.83 | 16.29 | 86.10 | 69.81 | 1.80 | 16.46 | 71.37 | 54.91 |
| 2.29 | 15.81 | 86.10 | 70.30 | 2.24 | 16.02 | 71.37 | 55.35 |
| 2.75 | 15.43 | 86.10 | 70.68 | 2.69 | 15.65 | 71.37 | 55.72 |
| 3.20 | 15.12 | 86.10 | 70.98 | 3.14 | 15.34 | 71.37 | 56.04 |
| 3.66 | 14.81 | 86.10 | 71.29 | 3.59 | 15.07 | 71.37 | 56.31 |
| 4.11 | 14.58 | 86.10 | 71.53 | 4.03 | 14.82 | 71.37 | 56.56 |
| 4.57 | 14.37 | 86.10 | 71.73 | 4.48 | 14.62 | 71.37 | 56.76 |
| 5.02 | 14.18 | 86.10 | 71.92 | 4.93 | 14.43 | 71.37 | 56.95 |
| 5.48 | 14.01 | 86.10 | 72.09 | 5.37 | 14.25 | 71.37 | 57.12 |
| 6.38 | 13.66 | 86.10 | 72.45 | 6.26 | 13.93 | 71.37 | 57.45 |
| 7.29 | 13.33 | 86.10 | 72.77 | 7.15 | 13.66 | 71.37 | 57.71 |
| 8.19 | 13.07 | 86.10 | 73.04 | 8.04 | 13.43 | 71.37 | 57.95 |
| 9.09 | 12.83 | 86.10 | 73.28 | 8.92 | 13.15 | 71.37 | 58.22 |
| 10.89 | 12.39 | 86.10 | 73.71 | 10.68 | 12.72 | 71.37 | 58.65 |
| 12.68 | 12.03 | 86.10 | 74.07 | 12.44 | 12.38 | 71.37 | 58.99 |
| 13.58 | 11.86 | 86.10 | 74.24 |  |  |  |  |

**[a]**pH = 6.7, uncertainties in ΔsG0, ΔsH0 and TΔsS0 values are found to be within ± 3%,± 4% and ± 4%, respectively.

**Table S2.** Thermodynamic parameters (ΔsG0, ΔsH0 and TΔsS0) for clouding of in 5% (w/w) EtOH−WR mixed media in presence of inorganic salts (KF, KCl, KBr, LiCl, NaCl and NH4Cl).[a]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mole fraction of additives****(χs × 103)** | **ΔsG0** **(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** | **Mole fraction of additives****(χs × 103)** | **ΔsG0** **(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** |
| **KF** | R² = 0.984 | **KCl** | R² = 0.984 |
| 0.46 | 19.34 | 191.34 | 172.00 | 0.48 | 19.30 | 91.10 | 71.80 |
| 0.93 | 17.72 | 191.34 | 173.63 | 0.96 | 17.78 | 91.10 | 73.32 |
| 1.39 | 16.79 | 191.34 | 174.55 | 1.44 | 16.85 | 91.10 | 74.26 |
| 1.86 | 16.11 | 191.34 | 175.23 | 1.92 | 16.16 | 91.10 | 74.94 |
| 2.32 | 15.59 | 191.34 | 175.75 | 2.40 | 15.77 | 91.10 | 75.33 |
| 2.78 | 15.18 | 191.34 | 176.16 | 2.87 | 15.38 | 91.10 | 75.72 |
| 3.24 | 14.82 | 191.34 | 176.52 | 3.35 | 15.05 | 91.10 | 76.05 |
| 3.71 | 14.51 | 191.34 | 176.83 | 3.83 | 14.75 | 91.10 | 76.35 |
| 4.17 | 14.23 | 191.34 | 177.11 | 4.30 | 14.51 | 91.10 | 76.60 |
| 4.63 | 13.99 | 191.34 | 177.36 | 4.78 | 14.30 | 91.10 | 76.80 |
| 5.09 | 13.76 | 191.34 | 177.58 | 5.26 | 14.09 | 91.10 | 77.01 |
| 5.55 | 13.55 | 191.34 | 177.79 | 5.73 | 13.90 | 91.10 | 77.20 |
| 6.47 | 13.17 | 191.34 | 178.17 | 6.68 | 13.54 | 91.10 | 77.56 |
| 7.39 | 12.84 | 191.34 | 178.50 | 7.63 | 13.24 | 91.10 | 77.86 |
| 8.30 | 12.55 | 191.34 | 178.79 | 8.57 | 12.96 | 91.10 | 78.15 |
| 9.22 | 12.28 | 191.34 | 179.06 | 9.52 | 12.72 | 91.10 | 78.38 |
| 10.13 | 12.04 | 191.34 | 179.30 | 10.46 | 12.50 | 91.10 | 78.60 |
| 11.04 | 11.82 | 191.34 | 179.52 | 12.34 | 12.08 | 91.10 | 79.02 |
| 12.85 | 11.44 | 191.34 | 179.91 | 14.21 | 11.74 | 91.10 | 79.36 |
| 13.76 | 11.27 | 191.34 | 180.08 | 14.67 | 11.66 | 91.10 | 79.44 |
| **KBr** | R² = 0.988 | **LiCl** | R² =0.98 |
| 0.09 | 23.44 | 170.65 | 147.21 | 0.47 | 19.41 | 80.57 | 61.17 |
| 0.18 | 21.83 | 170.65 | 148.82 | 0.94 | 17.84 | 80.57 | 62.74 |
| 0.27 | 20.89 | 170.65 | 149.76 | 1.41 | 16.96 | 80.57 | 63.61 |
| 0.37 | 20.23 | 170.65 | 150.42 | 1.88 | 16.35 | 80.57 | 64.23 |
| 0.46 | 19.73 | 170.65 | 150.92 | 2.35 | 15.87 | 80.57 | 64.71 |
| 0.55 | 19.33 | 170.65 | 151.32 | 2.82 | 15.49 | 80.57 | 65.08 |
| 0.64 | 18.97 | 170.65 | 151.67 | 3.29 | 15.16 | 80.57 | 65.41 |
| 0.73 | 18.66 | 170.65 | 151.98 | 3.76 | 14.88 | 80.57 | 65.69 |
| 0.82 | 18.40 | 170.65 | 152.25 | 4.23 | 14.65 | 80.57 | 65.92 |
| 0.91 | 18.16 | 170.65 | 152.49 | 4.69 | 14.43 | 80.57 | 66.14 |
| 1.01 | 17.93 | 170.65 | 152.71 | 5.16 | 14.22 | 80.57 | 66.35 |
| 1.19 | 17.56 | 170.65 | 153.09 | 5.63 | 14.03 | 80.57 | 66.54 |
| 1.37 | 17.24 | 170.65 | 153.40 | 6.56 | 13.69 | 80.57 | 66.88 |
| 1.55 | 16.95 | 170.65 | 153.69 | 7.49 | 13.43 | 80.57 | 67.14 |
| 1.74 | 16.68 | 170.65 | 153.96 | 8.42 | 13.16 | 80.57 | 67.41 |
| 2.03 | 16.31 | 170.65 | 154.33 | 9.34 | 12.91 | 80.57 | 67.66 |
| 2.32 | 15.99 | 170.65 | 154.66 | 10.27 | 12.69 | 80.57 | 67.88 |
| 2.61 | 15.70 | 170.65 | 154.95 | 12.11 | 12.30 | 80.57 | 68.27 |
| 2.76 | 15.57 | 170.65 | 155.07 | 13.95 | 11.99 | 80.57 | 68.59 |
| **NaCl** | R² =0.984 | **NH4Cl** | R² = 0.98, R² = 0.965 |
| 0.47 | 19.39 | 89.58 | 70.19 | 0.46 | 19.52 | 107.69 | 88.17 |
| 0.93 | 17.83 | 89.58 | 71.75 | 0.92 | 18.01 | 107.69 | 89.69 |
| 1.40 | 16.99 | 89.58 | 72.60 | 1.37 | 17.13 | 107.69 | 90.56 |
| 1.86 | 16.32 | 89.58 | 73.27 | 1.83 | 16.55 | 107.69 | 91.15 |
| 2.32 | 15.82 | 89.58 | 73.76 | 2.29 | 16.12 | 36.31 | 20.19 |
| 2.79 | 15.42 | 89.58 | 74.16 | 2.75 | 15.76 | 36.31 | 20.55 |
| 3.25 | 15.12 | 89.58 | 74.46 | 3.20 | 15.46 | 36.31 | 20.85 |
| 3.71 | 14.85 | 89.58 | 74.73 | 3.66 | 15.23 | 36.31 | 21.07 |
| 4.18 | 14.60 | 89.58 | 74.99 | 4.11 | 15.04 | 36.31 | 21.27 |
| 4.64 | 14.37 | 89.58 | 75.22 | 4.57 | 14.85 | 36.31 | 21.46 |
| 5.10 | 14.16 | 89.58 | 75.42 | 5.02 | 14.64 | 36.31 | 21.67 |
| 5.56 | 13.98 | 89.58 | 75.61 | 5.48 | 14.50 | 36.31 | 21.81 |
| 6.48 | 13.61 | 89.58 | 75.97 | 6.38 | 14.24 | 36.31 | 22.07 |
| 7.40 | 13.32 | 89.58 | 76.26 | 7.29 | 14.06 | 36.31 | 22.25 |
| 8.32 | 13.06 | 89.58 | 76.52 | 8.19 | 13.94 | 36.31 | 22.36 |
| 9.23 | 12.82 | 89.58 | 76.76 | 9.10 | 13.86 | 36.31 | 22.45 |
| 10.15 | 12.61 | 89.58 | 76.97 |  |  |  |  |
| 11.97 | 12.20 | 89.58 | 77.38 |  |  |  |  |
| 13.78 | 11.86 | 89.58 | 77.72 |  |  |  |  |

**[a]**pH = 6.70, uncertainties in ΔsG0, ΔsH0 and TΔsS0 values are found to be within ± 3%,± 4% and ± 4%, respectively.

**Table S3.** Thermodynamic parameters (ΔsG0, ΔsH0 and TΔsS0) for clouding of AMT in 10% (w/w) EtOH−WR mixed media in presence of inorganic salts (KF, KCl, KBr, LiCl, NaCl and NH4Cl).[a]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mole fraction of additives****(χs × 103)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** | **Mole fraction of additives****(χs × 103)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** |
| **KF** | R² = 0.99 | **KCl** |  |
| 0.48 | 19.27 | 184.58 | 165.30 | 0.49 | 19.30 | 96.02 | 76.72 |
| 0.96 | 17.66 | 184.58 | 166.91 | 0.98 | 17.73 | 96.02 | 78.29 |
| 1.44 | 16.73 | 184.58 | 167.84 | 1.47 | 16.84 | 96.02 | 79.18 |
| 1.91 | 16.08 | 184.58 | 168.50 | 1.96 | 16.21 | 96.02 | 79.81 |
| 2.39 | 15.56 | 184.58 | 169.02 | 2.44 | 15.73 | 96.02 | 80.29 |
| 2.87 | 15.15 | 184.58 | 169.43 | 2.93 | 15.41 | 96.02 | 80.61 |
| 3.34 | 14.79 | 184.58 | 169.78 | 3.42 | 15.02 | 96.02 | 81.00 |
| 3.82 | 14.49 | 184.58 | 170.09 | 3.90 | 14.69 | 96.02 | 81.33 |
| 4.29 | 14.20 | 184.58 | 170.38 | 4.39 | 14.49 | 96.02 | 81.53 |
| 4.77 | 13.94 | 184.58 | 170.64 | 4.87 | 14.23 | 96.02 | 81.79 |
| 5.24 | 13.70 | 184.58 | 170.88 | 5.36 | 14.00 | 96.02 | 82.02 |
| 5.72 | 13.48 | 184.58 | 171.10 | 5.84 | 13.80 | 96.02 | 82.22 |
| 6.66 | 13.10 | 184.58 | 171.47 | 6.81 | 13.47 | 96.02 | 82.55 |
| 7.61 | 12.78 | 184.58 | 171.79 | 7.78 | 13.16 | 96.02 | 82.86 |
| 8.55 | 12.50 | 184.58 | 172.08 | 8.74 | 12.89 | 96.02 | 83.13 |
| 9.49 | 12.25 | 184.58 | 172.33 | 9.70 | 12.65 | 96.02 | 83.38 |
| 10.43 | 12.00 | 184.58 | 172.57 | 10.66 | 12.42 | 96.02 | 83.60 |
| 11.37 | 11.79 | 184.58 | 172.79 | 11.62 | 12.21 | 96.02 | 83.81 |
| 12.31 | 11.59 | 184.58 | 172.99 | 12.58 | 12.03 | 96.02 | 83.99 |
| 13.24 | 11.40 | 184.58 | 173.17 | 13.53 | 11.85 | 96.02 | 84.17 |
| 14.17 | 11.23 | 184.58 | 173.34 | 15.24 | 11.57 | 96.02 | 84.45 |
| **KBr** | R² = 0.988 | **LiCl** | R² = 0.975 |
| 0.09 | 23.30 | 170.17 | 146.87 | 0.48 | 19.46 | 77.14 | 57.68 |
| 0.19 | 21.66 | 170.17 | 148.51 | 0.95 | 17.86 | 77.14 | 59.28 |
| 0.28 | 20.74 | 170.17 | 149.43 | 1.43 | 16.96 | 77.14 | 60.19 |
| 0.38 | 20.10 | 170.17 | 150.07 | 1.90 | 16.38 | 77.14 | 60.77 |
| 0.47 | 19.56 | 170.17 | 150.60 | 2.37 | 15.89 | 77.14 | 61.25 |
| 0.57 | 19.17 | 170.17 | 150.99 | 2.85 | 15.53 | 77.14 | 61.62 |
| 0.66 | 18.83 | 170.17 | 151.34 | 3.32 | 15.21 | 77.14 | 61.93 |
| 0.75 | 18.53 | 170.17 | 151.64 | 3.79 | 14.93 | 77.14 | 62.22 |
| 0.85 | 18.26 | 170.17 | 151.90 | 4.27 | 14.68 | 77.14 | 62.46 |
| 0.94 | 18.02 | 170.17 | 152.15 | 4.74 | 14.45 | 77.14 | 62.70 |
| 1.04 | 17.80 | 170.17 | 152.37 | 5.21 | 14.28 | 77.14 | 62.87 |
| 1.13 | 17.61 | 170.17 | 152.56 | 5.68 | 14.11 | 77.14 | 63.04 |
| 1.32 | 17.25 | 170.17 | 152.92 | 6.62 | 13.74 | 77.14 | 63.40 |
| 1.51 | 16.94 | 170.17 | 153.23 | 7.56 | 13.46 | 77.14 | 63.68 |
| 1.70 | 16.66 | 170.17 | 153.51 | 8.50 | 13.19 | 77.14 | 63.95 |
| 1.88 | 16.41 | 170.17 | 153.76 | 9.43 | 12.94 | 77.14 | 64.21 |
| 2.07 | 16.20 | 170.17 | 153.97 | 10.36 | 12.75 | 77.14 | 64.39 |
| 2.26 | 15.99 | 170.17 | 154.18 | 12.23 | 12.38 | 77.14 | 64.77 |
| 2.45 | 15.79 | 170.17 | 154.38 | 14.08 | 12.06 | 77.14 | 65.08 |
| 2.64 | 15.62 | 170.17 | 154.54 |  |  |  |  |
| 2.88 | 15.42 | 170.17 | 154.75 |  |  |  |  |
| **NaCl** | R² = 0.987 | **NH4Cl** | R² = 0.974, R² = 0.997 |
| 0.47 | 19.40 | 89.49 | 70.10 | 0.47 | 19.45 | 104.38 | 84.92 |
| 0.95 | 17.85 | 89.49 | 71.64 | 0.94 | 17.95 | 104.38 | 86.43 |
| 1.42 | 16.95 | 89.49 | 72.54 | 1.40 | 17.12 | 104.38 | 87.25 |
| 1.90 | 16.35 | 89.49 | 73.15 | 1.87 | 16.60 | 31.58 | 14.98 |
| 2.37 | 15.86 | 89.49 | 73.64 | 2.34 | 16.28 | 31.58 | 15.30 |
| 2.84 | 15.48 | 89.49 | 74.02 | 2.80 | 16.06 | 31.58 | 15.51 |
| 3.31 | 15.14 | 89.49 | 74.35 | 3.27 | 15.85 | 31.58 | 15.72 |
| 3.78 | 14.86 | 89.49 | 74.63 |  |  |  |  |
| 4.25 | 14.62 | 89.49 | 74.87 |  |  |  |  |
| 4.72 | 14.37 | 89.49 | 75.12 |  |  |  |  |
| 5.19 | 14.16 | 89.49 | 75.33 |  |  |  |  |
| 5.66 | 13.98 | 89.49 | 75.52 |  |  |  |  |
| 6.13 | 13.83 | 89.49 | 75.66 |  |  |  |  |
| 7.07 | 13.50 | 89.49 | 75.99 |  |  |  |  |
| 8.00 | 13.19 | 89.49 | 76.30 |  |  |  |  |
| 8.94 | 12.95 | 89.49 | 76.54 |  |  |  |  |
| 9.87 | 12.71 | 89.49 | 76.79 |  |  |  |  |
| 11.73 | 12.30 | 89.49 | 77.19 |  |  |  |  |
| 13.58 | 11.92 | 89.49 | 77.58 |  |  |  |  |

**[a]**pH = 6.70, uncertainties in ΔsG0, ΔsH0 and TΔsS0 values are found to be within ± 3%,± 4% and ± 4%, respectively.

**Table S4** Thermodynamic parameters (ΔsG0, ΔsH0 and TΔsS0) for clouding of AMT (with KCl salt) in 15% (w/w) EtOH−WR mixed media with variation of pH range (6.70, 6.85, 6.91, 6.95, 7.02, 7.15).[a]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mole fraction of additives****(χs × 103)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** | **Mole fraction of additives****(χs × 103)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** |
| **KCl*****pH=6.7*** | **—** | **KCl*****pH=6.85*** | R² = 0.97 |
| 0.49 | 22.11 | **—** | **—** | 0.48 | 20.92 | 83.66 | 62.74 |
|  |  |  |  | 0.97 | 19.53 | 83.66 | 64.14 |
|  |  |  |  | 1.45 | 18.55 | 83.66 | 65.11 |
|  |  |  |  | 1.93 | 17.80 | 83.66 | 65.86 |
|  |  |  |  | 2.41 | 17.49 | 83.66 | 66.18 |
|  |  |  |  | 2.89 | 17.03 | 83.66 | 66.64 |
|  |  |  |  | 3.37 | 16.64 | 83.66 | 67.03 |
| **KCl*****pH=6.91*** | R² = 0.997, R² = 0.98 | **KCl*****pH=6.95*** | R² = 0.995 |
| 0.49 | 20.89 | 166.03 | 145.14 | 0.50 | 20.60 | 91.33 | 70.73 |
| 0.97 | 19.20 | 166.03 | 146.83 | 0.99 | 19.10 | 91.33 | 72.22 |
| 1.46 | 18.22 | 166.03 | 147.82 | 1.49 | 18.12 | 91.33 | 73.21 |
| 1.94 | 17.62 | 44.94 | 27.33 | 1.99 | 17.51 | 91.33 | 73.82 |
| 2.42 | 17.22 | 44.94 | 27.72 | 2.48 | 17.01 | 91.33 | 74.32 |
| 2.91 | 16.95 | 44.94 | 28.00 | 2.98 | 16.62 | 91.33 | 74.71 |
| 3.39 | 16.60 | 44.94 | 28.35 | 3.47 | 16.23 | 91.33 | 75.10 |
|  |  |  |  | 3.96 | 15.94 | 91.33 | 75.39 |
|  |  |  |  | 4.46 | 15.66 | 91.33 | 75.67 |
|  |  |  |  | 4.95 | 15.40 | 91.33 | 75.93 |
|  |  |  |  | 5.44 | 15.19 | 91.33 | 76.14 |
|  |  |  |  | 5.93 | 14.97 | 91.33 | 76.36 |
|  |  |  |  | 6.91 | 14.56 | 91.33 | 76.77 |
| **KCl*****pH=7.02*** | R² = 0.993 | **KCl*****pH=7.15*** | R² = 0.991 |
| 0.49 | 20.14 | 80.03 | 59.89 | 0.49 | 19.64 | 90.31 | 70.68 |
| 0.98 | 18.58 | 80.03 | 61.45 | 0.98 | 18.04 | 90.31 | 72.28 |
| 1.46 | 17.71 | 80.03 | 62.32 | 1.47 | 17.12 | 90.31 | 73.19 |
| 1.95 | 17.13 | 80.03 | 62.90 | 1.96 | 16.53 | 90.31 | 73.79 |
| 2.44 | 16.73 | 80.03 | 63.30 | 2.45 | 16.08 | 90.31 | 74.23 |
| 2.92 | 16.27 | 80.03 | 63.76 | 2.94 | 15.68 | 90.31 | 74.63 |
| 3.41 | 15.90 | 80.03 | 64.13 | 3.43 | 15.36 | 90.31 | 74.95 |
| 3.89 | 15.69 | 80.03 | 64.34 | 3.92 | 15.05 | 90.31 | 75.27 |
| 4.38 | 15.38 | 80.03 | 64.65 | 4.41 | 14.77 | 90.31 | 75.54 |
| 4.86 | 15.11 | 80.03 | 64.92 | 4.89 | 14.55 | 90.31 | 75.77 |
| 5.34 | 14.92 | 80.03 | 65.11 | 5.38 | 14.32 | 90.31 | 75.99 |
| 5.83 | 14.73 | 80.03 | 65.30 | 5.87 | 14.13 | 90.31 | 76.19 |
| 6.79 | 14.37 | 80.03 | 65.66 | 6.84 | 13.78 | 90.31 | 76.53 |
| 7.75 | 14.04 | 80.03 | 65.99 | 7.81 | 13.48 | 90.31 | 76.84 |
| 8.72 | 13.76 | 80.03 | 66.27 | 8.78 | 13.20 | 90.31 | 77.12 |
| 9.67 | 13.50 | 80.03 | 66.53 | 9.74 | 12.96 | 90.31 | 77.36 |
| 10.63 | 13.28 | 80.03 | 66.75 | 10.71 | 12.73 | 90.31 | 77.59 |
| 11.59 | 13.05 | 80.03 | 66.98 | 11.67 | 12.51 | 90.31 | 77.80 |
|  |  |  |  | 13.59 | 12.13 | 90.31 | 78.19 |
|  |  |  |  | 14.54 | 11.96 | 90.31 | 78.36 |
|  |  |  |  | 15.11 | 11.87 | 90.31 | 78.45 |

[a]Uncertainties in ΔsG0, ΔsH0 and TΔsS0 values are found to be within ± 3%,± 4% and ± 4%, respectively.

**Table S5.** Thermodynamic parameters (ΔsG0, ΔsH0 and TΔsS0) for clouding of AMT in pure water in presence of cationic conventional/gemini surfactants (TTAB, CTAB, 14-4-14, 14-5-14 and 14-6-14).[a]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mole fraction of additives****(χs × 106)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** | **Mole fraction of additives****(χs × 106)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** |
| **TTAB** | R² = 0.961 | **CTAB** | R² = 0.947 |
| 10.57 | 28.89 | 105.44 | 76.55 | 11.53 | 28.75 | 79.12 | 50.37 |
| 21.14 | 27.37 | 105.44 | 78.07 | 23.07 | 27.20 | 79.12 | 51.92 |
| 31.71 | 26.46 | 105.44 | 78.98 | 34.60 | 26.36 | 79.12 | 52.76 |
| 42.28 | 25.89 | 105.44 | 79.55 | 46.13 | 25.79 | 79.12 | 53.33 |
| 52.85 | 25.44 | 105.44 | 80.00 | 57.67 | 25.38 | 79.12 | 53.74 |
| 63.41 | 25.05 | 105.44 | 80.39 | 69.20 | 25.06 | 79.12 | 54.07 |
| 73.98 | 24.76 | 105.44 | 80.67 | 80.73 | 24.80 | 79.12 | 54.33 |
| 84.55 | 24.52 | 105.44 | 80.92 | 92.26 | 24.58 | 79.12 | 54.54 |
| 95.12 | 24.33 | 105.44 | 81.11 | 103.79 | 24.40 | 79.12 | 54.72 |
| 105.69 | 24.12 | 105.44 | 81.32 | 115.33 | 24.21 | 79.12 | 54.91 |
| 126.82 | 23.75 | 105.44 | 81.69 | 138.39 | 23.89 | 79.12 | 55.24 |
| 147.96 | 23.47 | 105.44 | 81.97 | 161.45 | 23.63 | 79.12 | 55.49 |
| 169.09 | 23.21 | 105.44 | 82.23 | 184.51 | 23.43 | 79.12 | 55.69 |
| 190.22 | 22.98 | 105.44 | 82.46 | 207.57 | 23.25 | 79.12 | 55.87 |
| 211.35 | 22.78 | 105.44 | 82.66 | 230.62 | 23.08 | 79.12 | 56.04 |
| 232.48 | 22.62 | 105.44 | 82.82 | 253.68 | 22.94 | 79.12 | 56.18 |
| **14-4-14** | R² = 0.994, R² = 0.979 | **14-5-14** | R² = 0.988, R² = 0.982 |
| 10.95 | 28.85 | 151.51 | 122.65 | 10.79 | 28.93 | 146.91 | 117.98 |
| 21.90 | 27.40 | 151.51 | 124.11 | 21.57 | 27.47 | 146.91 | 119.44 |
| 32.85 | 26.57 | 151.51 | 124.94 | 32.36 | 26.66 | 146.91 | 120.25 |
| 43.80 | 26.05 | 42.90 | 16.85 | 43.14 | 26.15 | 44.17 | 18.02 |
| 54.75 | 25.69 | 42.90 | 17.21 | 53.93 | 25.78 | 44.17 | 18.38 |
| 65.69 | 25.43 | 42.90 | 17.47 | 64.71 | 25.51 | 44.17 | 18.65 |
| 76.64 | 25.18 | 42.90 | 17.71 | 75.50 | 25.28 | 44.17 | 18.89 |
| 87.59 | 25.01 | 42.90 | 17.89 | 86.28 | 25.11 | 44.17 | 19.06 |
| 98.54 | 24.86 | 42.90 | 18.04 | 97.07 | 24.96 | 44.17 | 19.21 |
| 109.48 | 24.75 | 42.90 | 18.15 | 107.85 | 24.84 | 44.17 | 19.33 |
| 125.90 | 24.64 | 42.90 | 18.26 | 124.03 | 24.73 | 44.17 | 19.44 |
| 142.32 | 24.50 | 42.90 | 18.40 | 140.20 | 24.63 | 44.17 | 19.54 |
| 158.74 | 24.41 | 42.90 | 18.48 | 156.38 | 24.45 | 44.17 | 19.71 |
| 175.16 | 24.39 | 42.90 | 18.51 | 172.55 | 24.40 | 44.17 | 19.76 |
| 191.58 | 24.34 | 42.90 | 18.56 | 188.72 | 24.39 | 44.17 | 19.77 |
| **14-6-14** | R² =0.94, R² = 0.978 |  |  |  |  |
| 10.68 | 28.93 | 150.15 | 121.22 |  |  |  |  |
| 21.36 | 27.42 | 150.15 | 122.73 |  |  |  |  |
| 32.04 | 26.64 | 150.15 | 123.51 |  |  |  |  |
| 42.73 | 26.18 | 43.62 | 17.44 |  |  |  |  |
| 53.41 | 25.76 | 43.62 | 17.86 |  |  |  |  |
| 64.09 | 25.46 | 43.62 | 18.16 |  |  |  |  |
| 74.77 | 25.27 | 43.62 | 18.35 |  |  |  |  |
| 85.45 | 25.08 | 43.62 | 18.54 |  |  |  |  |
| 96.13 | 24.94 | 43.62 | 18.68 |  |  |  |  |
| 106.81 | 24.84 | 43.62 | 18.78 |  |  |  |  |
| 122.83 | 24.75 | 43.62 | 18.86 |  |  |  |  |
| 138.84 | 24.62 | 43.62 | 19.00 |  |  |  |  |
| 154.86 | 24.49 | 43.62 | 19.13 |  |  |  |  |
| 170.88 | 24.40 | 43.62 | 19.22 |  |  |  |  |
| 186.90 | 24.39 | 43.62 | 19.23 |  |  |  |  |

**[a]**pH = 6.70, uncertainties in ΔsG0, ΔsH0 and TΔsS0 values are found to be within ± 3%,± 4% and ± 4%, respectively.

**Table S6.** Thermodynamic parameters (ΔsG0, ΔsH0 and TΔsS0) for clouding of AMT in 5% (w/w) EtOH−WR mixed media in presence of cationic conventional/gemini surfactants (TTAB, CTAB, 14-4-14, 14-5-14 and 14-6-14).[a]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mole fraction of additives****(χs \*106)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** | **Mole fraction of additives****(χs \*106)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** |
| **TTAB** | R² = 0.966 | **CTAB** | R² = 0.96 |
| 10.97 | 28.94 | 80.41 | 51.47 | 10.94 | 28.97 | 58.61 | 29.64 |
| 21.93 | 27.42 | 80.41 | 52.99 | 21.89 | 27.52 | 58.61 | 31.09 |
| 32.90 | 26.62 | 80.41 | 53.79 | 32.83 | 26.80 | 58.61 | 31.81 |
| 43.87 | 26.04 | 80.41 | 54.37 | 43.77 | 26.34 | 58.61 | 32.27 |
| 54.84 | 25.63 | 80.41 | 54.78 | 54.72 | 25.98 | 58.61 | 32.63 |
| 65.80 | 25.35 | 80.41 | 55.06 | 65.66 | 25.76 | 58.61 | 32.85 |
| 76.77 | 25.12 | 80.41 | 55.28 | 76.60 | 25.46 | 58.61 | 33.15 |
| 87.73 | 24.86 | 80.41 | 55.55 | 87.54 | 25.26 | 58.61 | 33.35 |
| 98.70 | 24.69 | 80.41 | 55.72 | 98.48 | 25.12 | 58.61 | 33.48 |
| 109.66 | 24.50 | 80.41 | 55.91 | 109.42 | 25.02 | 58.61 | 33.59 |
| 131.59 | 24.19 | 80.41 | 56.22 | 131.31 | 24.79 | 58.61 | 33.81 |
| 153.52 | 23.93 | 80.41 | 56.48 | 153.19 | 24.59 | 58.61 | 34.01 |
| 175.45 | 23.68 | 80.41 | 56.73 | 175.07 | 24.39 | 58.61 | 34.22 |
| 197.38 | 23.45 | 80.41 | 56.96 | 196.95 | 24.24 | 58.61 | 34.37 |
| 219.31 | 23.27 | 80.41 | 57.14 | 218.83 | 24.15 | 58.61 | 34.46 |
| 241.23 | 23.11 | 80.41 | 57.30 | 240.70 | 24.01 | 58.61 | 34.59 |
| **14-4-14** | R² =0.978, R² =0.978 | **14-5-14** | R² = 0.982, R² = 0.987 |
| 11.22 | 28.84 | 149.36 | 120.52 | 10.88 | 28.99 | 121.55 | 92.55 |
| 22.43 | 27.36 | 149.36 | 122.00 | 21.77 | 27.58 | 121.55 | 93.97 |
| 33.65 | 26.56 | 149.36 | 122.80 | 32.65 | 26.82 | 121.55 | 94.72 |
| 44.86 | 26.07 | 38.56 | 12.50 | 43.53 | 26.36 | 38.69 | 12.33 |
| 56.08 | 25.69 | 38.56 | 12.87 | 54.41 | 26.04 | 38.69 | 12.65 |
| 67.29 | 25.41 | 38.56 | 13.15 | 65.30 | 25.75 | 38.69 | 12.94 |
| 78.50 | 25.19 | 38.56 | 13.37 | 76.18 | 25.62 | 38.69 | 13.07 |
| 89.72 | 25.07 | 38.56 | 13.49 | 87.06 | 25.47 | 38.69 | 13.21 |
| 100.93 | 24.97 | 38.56 | 13.59 | 97.94 | 25.38 | 38.69 | 13.31 |
| 112.14 | 24.87 | 38.56 | 13.69 | 108.82 | 25.28 | 38.69 | 13.41 |
| 128.96 | 24.77 | 38.56 | 13.79 | 125.14 | 25.14 | 38.69 | 13.55 |
| 145.78 | 24.76 | 38.56 | 13.80 | 141.47 | 25.07 | 38.69 | 13.62 |
| 162.60 | 24.64 | 38.56 | 13.92 | 157.79 | 24.98 | 38.69 | 13.71 |
| 179.42 | 24.58 | 38.56 | 13.98 | 174.11 | 24.92 | 38.69 | 13.76 |
| 196.24 | 24.51 | 38.56 | 14.05 | 190.43 | 24.94 | 38.69 | 13.75 |
| **14-6-14** | R² = 0.99, R² = 0.982 |  |  |  |  |
| 10.74 | 28.97 | 122.79 | 93.82 |  |  |  |  |
| 21.49 | 27.57 | 122.79 | 95.22 |  |  |  |  |
| 32.23 | 26.80 | 122.79 | 95.99 |  |  |  |  |
| 42.97 | 26.30 | 40.00 | 13.71 |  |  |  |  |
| 53.71 | 25.95 | 40.00 | 14.05 |  |  |  |  |
| 64.45 | 25.68 | 40.00 | 14.32 |  |  |  |  |
| 75.19 | 25.46 | 40.00 | 14.54 |  |  |  |  |
| 85.94 | 25.32 | 40.00 | 14.69 |  |  |  |  |
| 96.68 | 25.20 | 40.00 | 14.80 |  |  |  |  |
| 107.42 | 25.15 | 40.00 | 14.86 |  |  |  |  |
| 123.53 | 24.99 | 40.00 | 15.02 |  |  |  |  |
| 139.64 | 24.90 | 40.00 | 15.11 |  |  |  |  |
| 155.75 | 24.85 | 40.00 | 15.15 |  |  |  |  |
| 171.86 | 24.78 | 40.00 | 15.23 |  |  |  |  |
| 187.96 | 24.74 | 40.00 | 15.26 |  |  |  |  |

**[a]**pH = 6.70, uncertainties in ΔsG0, ΔsH0 and TΔsS0 values are found to be within ± 3%,± 4% and ± 4%, respectively.

**Table S7.** Thermodynamic parameters (ΔsG0, ΔsH0 and TΔsS0) for clouding of AMT in 10% (w/w) EtOH−WR mixed media in presence of cationic conventional/gemini surfactants (TTAB, CTAB, 14-4-14, 14-5-14 and 14-6-14).[a]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mole fraction of additives****(χs × 106)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** | **Mole fraction of additives****(χs × 106)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** |
| **TTAB** | R² = 0.961 | **CTAB** | R² = 0.932 |
| 11.57 | 28.81 | 71.87 | 43.06 | 11.46 | 28.94 | 48.16 | 19.22 |
| 23.13 | 27.32 | 71.87 | 44.55 | 22.92 | 27.43 | 48.16 | 20.72 |
| 34.70 | 26.52 | 71.87 | 45.35 | 34.38 | 26.72 | 48.16 | 21.44 |
| 46.26 | 25.99 | 71.87 | 45.89 | 45.84 | 26.25 | 48.16 | 21.90 |
| 57.83 | 25.58 | 71.87 | 46.29 | 57.30 | 26.00 | 48.16 | 22.16 |
| 69.40 | 25.29 | 71.87 | 46.58 | 68.76 | 25.77 | 48.16 | 22.39 |
| 80.96 | 25.06 | 71.87 | 46.81 | 80.22 | 25.65 | 48.16 | 22.50 |
| 92.53 | 24.86 | 71.87 | 47.01 | 91.67 | 25.51 | 48.16 | 22.64 |
| 104.09 | 24.71 | 71.87 | 47.16 | 103.13 | 25.50 | 48.16 | 22.65 |
| 115.65 | 24.58 | 71.87 | 47.29 | 114.59 | 25.37 | 48.16 | 22.79 |
| 138.78 | 24.27 | 71.87 | 47.60 | 137.50 | 25.18 | 48.16 | 22.97 |
| 161.91 | 23.93 | 71.87 | 47.94 | 160.42 | 25.03 | 48.16 | 23.13 |
| 185.03 | 23.66 | 71.87 | 48.22 | 183.33 | 24.97 | 48.16 | 23.19 |
| 208.16 | 23.49 | 71.87 | 48.38 | 206.24 | 24.88 | 48.16 | 23.27 |
| 237.06 | 23.34 | 71.87 | 48.54 |  |  |  |  |
| 265.97 | 23.21 | 71.87 | 48.66 |  |  |  |  |
| **14-4-14** | R² = 0.946, R² = 0.984 | **14-5-14** | R² = 0.948, R² = 0.975 |
| 11.04 | 29.32 | 115.75 | 86.43 | 11.02 | 29.37 | 103.16 | 73.79 |
| 22.09 | 27.87 | 115.75 | 87.88 | 22.04 | 27.96 | 103.16 | 75.20 |
| 33.13 | 27.16 | 115.75 | 88.59 | 33.06 | 27.29 | 103.16 | 75.87 |
| 44.18 | 26.74 | 34.33 | 7.59 | 44.09 | 26.86 | 32.85 | 5.99 |
| 55.22 | 26.46 | 34.33 | 7.87 | 55.11 | 26.57 | 32.85 | 6.28 |
| 66.27 | 26.28 | 34.33 | 8.05 | 66.13 | 26.38 | 32.85 | 6.47 |
| 77.31 | 26.18 | 34.33 | 8.15 | 77.15 | 26.23 | 32.85 | 6.62 |
| 88.35 | 26.09 | 34.33 | 8.24 | 88.17 | 26.23 | 32.85 | 6.62 |
| 99.39 | 26.03 | 34.33 | 8.29 | 99.19 | 26.18 | 32.85 | 6.67 |
| 110.44 | 26.02 | 34.33 | 8.30 | 110.21 | 26.23 | 32.85 | 6.62 |
| 127.00 | 26.04 | 34.33 | 8.29 | 126.74 | 26.23 | 32.85 | 6.62 |
| **14-6-14** | R² = 0.976, R² = 0.983 |  |  |  |  |
| 11.28 | 29.28 | 103.63 | 74.35 |  |  |  |  |
| 22.56 | 27.91 | 103.63 | 75.72 |  |  |  |  |
| 33.84 | 27.20 | 103.63 | 76.43 |  |  |  |  |
| 45.13 | 26.88 | 33.49 | 6.61 |  |  |  |  |
| 56.41 | 26.61 | 33.49 | 6.88 |  |  |  |  |
| 67.69 | 26.43 | 33.49 | 7.06 |  |  |  |  |
| 78.97 | 26.31 | 33.49 | 7.19 |  |  |  |  |
| 90.25 | 26.24 | 33.49 | 7.25 |  |  |  |  |
| 101.53 | 26.23 | 33.49 | 7.26 |  |  |  |  |
| 112.81 | 26.25 | 33.49 | 7.24 |  |  |  |  |
| 129.72 | 26.21 | 33.49 | 7.28 |  |  |  |  |

**[a]**pH = 6.70, uncertainties in ΔsG0, ΔsH0 and TΔsS0 values are found to be within ± 3%,± 4% and ± 4%, respectively.

**Table S8.** Thermodynamic parameters (ΔsG0, ΔsH0 and TΔsS0) for clouding of in 15% (w/w) EtOH−WR mixed media in presence of cationic conventional/gemini surfactants (TTAB, CTAB, 14-4-14, 14-5-14 and 14-6-14).[a]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mole fraction of additives****(χs × 106)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** | **Mole fraction of additives****(χs × 106)** | **ΔsG0****(kJ mol–1)** | **ΔsH0****(kJ mol–1)** | **TΔsS0****(kJ mol–1)** |
| **TTAB** | R² = 0.93 | **CTAB** | R² = 0.956, R² = 0.997 |
| 11.48 | 29.90 | 65.71 | 35.82 | 12.10 | 30.00 | 111.76 | 81.76 |
| 22.96 | 28.20 | 65.71 | 37.51 | 24.20 | 28.47 | 111.76 | 83.29 |
| 34.44 | 27.36 | 65.71 | 38.35 | 36.31 | 27.74 | 111.76 | 84.02 |
| 45.92 | 26.82 | 65.71 | 38.89 | 48.41 | 27.19 | 111.76 | 84.57 |
| 57.40 | 26.43 | 65.71 | 39.28 | 60.51 | 26.75 | 38.75 | 12.00 |
| 68.88 | 26.13 | 65.71 | 39.58 | 72.61 | 26.56 | 38.75 | 12.18 |
| 80.35 | 25.91 | 65.71 | 39.81 | 84.71 | 26.38 | 38.75 | 12.37 |
| 91.83 | 25.67 | 65.71 | 40.04 | 96.81 | 26.34 | 38.75 | 12.41 |
| 103.31 | 25.51 | 65.71 | 40.20 | 108.91 | 26.21 | 38.75 | 12.54 |
| 114.79 | 25.39 | 65.71 | 40.33 | 121.01 | 26.11 | 38.75 | 12.64 |
| 126.26 | 25.28 | 65.71 | 40.43 | 145.21 | 25.93 | 38.75 | 12.82 |
| 137.74 | 25.20 | 65.71 | 40.51 |  |  |  |  |
| 160.69 | 24.97 | 65.71 | 40.75 |  |  |  |  |
| 183.65 | 24.73 | 65.71 | 40.99 |  |  |  |  |
| 206.60 | 24.55 | 65.71 | 41.16 |  |  |  |  |
| 229.55 | 24.44 | 65.71 | 41.28 |  |  |  |  |
| 252.50 | 24.27 | 65.71 | 41.44 |  |  |  |  |
| **14-4-14** | R² = 0.93 | **14-5-14** | R² = 0.95 |
| 11.67 | 30.23 | 50.12 | 19.89 | 12.30 | 30.22 | 53.56 | 23.33 |
| 23.35 | 29.03 | 50.12 | 21.09 | 24.61 | 28.97 | 53.56 | 24.59 |
| 35.02 | 28.51 | 50.12 | 21.61 | 36.91 | 28.48 | 53.56 | 25.07 |
| 46.70 | 28.31 | 50.12 | 21.81 | 49.21 | 28.25 | 53.56 | 25.31 |
| 58.37 | 28.32 | 50.12 | 21.80 | 61.51 | 28.11 | 53.56 | 25.44 |
| **14-6-14** | R² = 0.931 |  |  |  |  |
| 10.88 | 30.46 | 49.97 | 19.52 |  |  |  |  |
| 21.77 | 29.20 | 49.97 | 20.77 |  |  |  |  |
| 32.65 | 28.76 | 49.97 | 21.22 |  |  |  |  |
| 43.53 | 28.52 | 49.97 | 21.45 |  |  |  |  |
| 54.42 | 28.55 | 49.97 | 21.42 |  |  |  |  |

**[a]**pH = 6.95, uncertainties in ΔsG0, ΔsH0 and TΔsS0 values are found to be within ± 3%,± 4% and ± 4%, respectively.