SUPPORTING INFORMATION

$^{18}O/^{16}O$ Isotope Effect on Miscibility of Isobutyric Acid with Water

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Table 1. Miscibility data for isobutyric acid + water ($^{16}O/^{18}O$) system

Isobutyric acid + H_2O (^{16}O)		Isobutyric acid + H_2O (^{18}O)	
x	T/K	x	T/K
0.0483	291.41	0.0492	292.44
0.0520	293.36	0.0537	294.89
0.0565	295.45	0.0585	296.47
0.0627	296.95	0.0635	297.54
0.0753	298.67	0.0711	298.48
0.0878	299.33	0.0816	299.10
0.1024	299.58	0.0930	299.39
0.1195	299.59	0.1048	299.45
0.1374	299.42	0.1232	299.44
0.1564	299.09	0.1389	299.37
0.1836	298.01	0.1563	299.03
0.2060	296.59	0.1742	298.41
0.2342	294.30	0.1943	297.34
0.2696	290.84	0.2162	295.83
		0.2368	294.18
		0.2586	292.03

Data were fitted to the extended scaling equation (Wegner expansion)[1]

$$|x - x_c| = A_1 t^{\beta} + A_2 t^{\beta+\Delta}) \qquad (1)$$

where $t = 1-T/T_c$; x and T are mole fractions of isobutyric acid and temperature, x_c and T_c the corresponding critical values; β is the universal critical exponent and Δ is the correction exponent in Wegner expansion; A_1, A_2 are the critical amplitudes. The results of the analysis are listed in Table 2.

Table2. Critical parameters from scaling equation (1) with fixed β =0.325 and Δ=0.5

	x_c	T_c/K	A_1	A_2	$\sigma^2 x10^4$
i-BuCOOH+ H_2O-^{16}O	0.121±0.002	299.61±0.03	0.49±0.14	23.4±2.3	4.07
i-BuCOOH+ H_2O-^{18}O	0.118±0.001	299.45±0.02	0.44±0.06	27.3±0.67	2.87

References

1. Wegner, F.J. *Phys.Rev. B* **1972**, 5, 4529- 4536