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Corrigendum to

"Reactive processing of formaldehyde and acetaldehyde in aqueous aerosol mimics: surface tension depression and secondary organic products" published in Atmos. Chem. Phys., 11, 11617–11629, 2011

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We have found a numerical error in our paper "Reactive processing of formaldehyde and acetaldehyde in aqueous aerosol mimics: surface tension depression and secondary organic products" by Z. Li et al. (Atmos. Chem. Phys., 11, 11617–11629, 2011). The Szyszkowski-Langmuir equation fit parameters, a and b, of acetaldehyde/$(NH_4)_2SO_4$ solutions were calculated incorrectly, affecting the surface tension modeling predictions of complex mixtures. We have recalculated all the data using the correct fit parameters, so the tables and figures supplied in this corrigendum should be substituted for the tables and figures given in the article and supplemental information. Our conclusions are not affected by this error: the surface tension depression of complex mixtures does still exceed that predicted by an additive model based on single species isotherms, however the difference between the model prediction and experimental data is now smaller.

Results

In Eq. (1), a "g" term should be in the numerator, $\sigma = \frac{\Delta\rho g d_e^2}{H}$

In Eq. (3), "C_i" should be replaced by "C", and defined as the total soluble organic carbon

$$\sigma = \sigma_o(T) - \sum_i \chi_i a_i T \ln(1 + b_i C)$$

In Sect. 3.1.2, the new calculated error of the prediction for mixtures of MG and acetaldehyde is less than 10 %.

The corrected tables and figures are shown on the following pages.

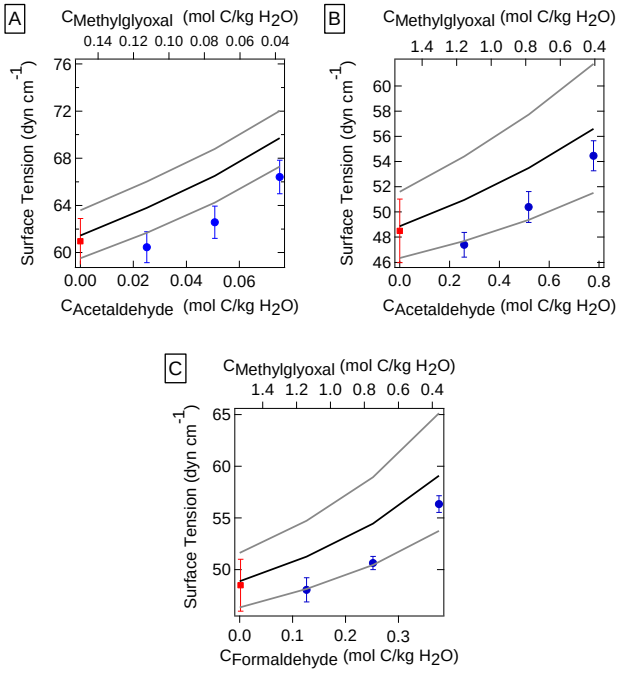

Fig. 2. Surface tension of binary mixtures of acetaldehyde or formaldehyde with MG in 3.1 M AS solutions. The total organic concentration was 0.05 M **(A)** or 0.5 M **(B, C)**. The black line shows Henning model predictions (Eq. 3) using the parameters listed in Table 1. The grey lines show the confidence interval of the model predictions. Red: MG in AS (based on the Szyszkowski-Langmuir equation (Eq. 2), using the parameters in Table 1). Blue: acetaldehyde (**A** and **B**) or Formaldehyde **(C)** with MG in 3.1 M AS solutions.

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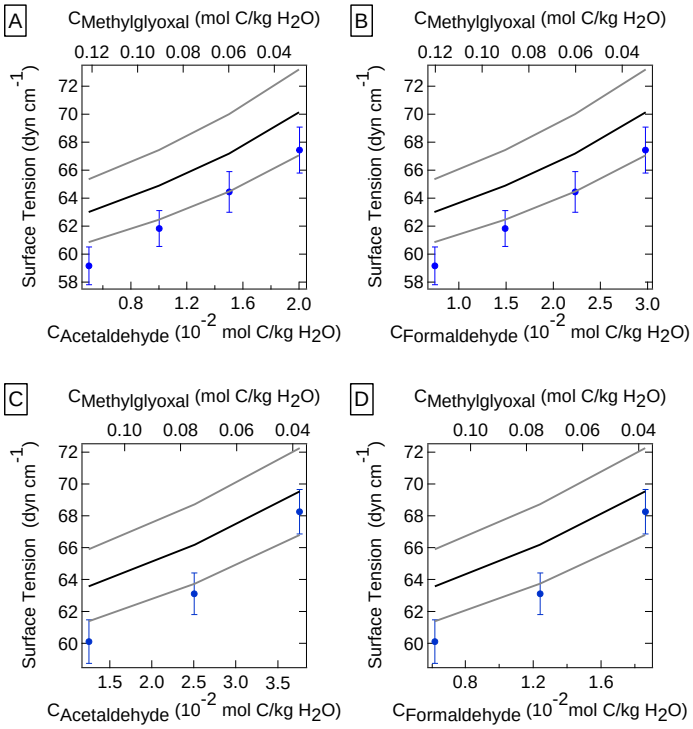

Fig. 4. Surface tension data for ternary (acetaldehyde, formaldehyde and MG) mixtures in 3.1 M AS solutions. The molar ratios of acetaldehyde to formaldehyde are 1 : 3 (**A** and **B**) and 1 : 1 (**C** and **D**). The total organic concentration was constant at 0.05 M. The black line shows Henning model predictions using the parameters listed in Table 1. The grey lines show the confidence interval of the predicted data.

Table 1. Szyszkowski-Langmuir Fit Parameters according to Eq. (2).

Mixture	σ_0 (dyn cm^{-1})	a (dyn cm^{-1} K^{-1})	b (kg H_2O (mol C)$^{-1}$)
Methylglyoxal + 3.1 M $(NH_4)_2SO_4$ (Sareen et al., 2010)	78.5	0.0185 ± 0.0008	140 ± 34
Acetaldehyde + 3.1 M $(NH_4)_2SO_4$	78.5	0.0260 ± 0.0048	8.93 ± 3.61
Formaldehyde + 3.1 M $(NH_4)_2SO_4$	78.5	0.0119 ± 0.0043	50.23 ± 44.8
Acetaldehyde + H_2O	72.0	0.0037 ± 0.0011	491.64 ± 689

Table S1. Calculated errors between the Henning model predictions (using Eq. 3) and experimentally measured surface tension values.

Total Organic Concentration	Species	MG*	Acet*	Form*	Model Prediction	Measured Data	Error
(mol L^{-1})		(mol C kg^{-1} H_2O)			(dyn cm^{-1})		(%)
0.05	MG Acet : Form = 1 : 3	0.030	0.020	0.030	70.137	67.438	3.849
		0.060	0.015	0.022	67.185	64.438	4.089
		0.090	0.010	0.015	64.878	61.822	4.711
		0.120	0.005	0.007	63.007	59.159	6.107
	MG Acet : Form = 1 : 1	0.113	0.013	0.006	63.563	60.105	5.440
		0.075	0.025	0.012	66.186	63.105	4.656
		0.038	0.038	0.019	69.534	68.249	1.848
	MG/Acet	0.038	0.075	N/A	69.716	66.407	4.746
		0.075	0.051	N/A	66.512	62.575	5.920
		0.113	0.025	N/A	63.790	60.465	5.213
0.5	MG/Acet	1.153	0.259	N/A	50.963	47.388	7.016
		0.770	0.518	N/A	53.492	50.389	5.801
		0.385	0.778	N/A	56.601	54.454	3.793
	MG/Form	1.148	N/A	0.126	51.258	48.046	6.267
		0.763	N/A	0.252	54.451	50.638	7.003
		0.381	N/A	0.377	59.093	56.334	4.669

* MG: Methylglyoxal; Acet: Acetaldehyde; Form: Formaldehyde