Erratum: X-ray studies of interlayer water absorption and mesoporous water transport in a weakly hydrated clay [Phys. Rev. E 82, 036315 (2010)]

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First, we correct two typographical errors in the published paper: Eq. (3) should have read

$$H_x(t) = [(H_x(t=\infty) - H_x(t=0)] \cdot \left[1 - \exp\left(-\left[\frac{t}{\tau_x}\right]^{\beta_x}\right)\right] + H_x(t=0), \qquad (3)$$

and the reference to Fig. 12 in the caption of Fig. 14 should have been a reference to Fig. 13.

Second, Fig. 11 in the paper was incorrect: It was an obsolete version corresponding to an erroneous sample-to-detector distance. An additional mistake in preparing Fig. 12 caused a propagation of error to Figs. 13, 14, and 15. Here, we provide new versions of these figures.

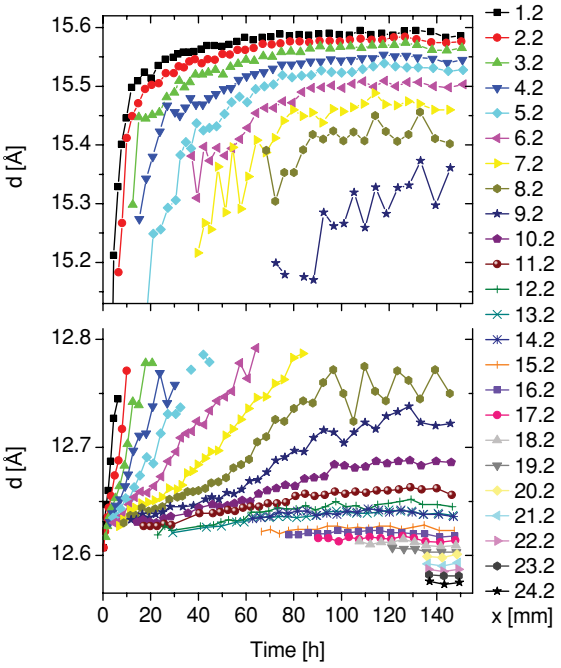


FIG. 11. (Color online) d spacing as a function of time for 25 spatial coordinates in the quasi-one-dimensional sample, separated by 1.0 mm. $x = 0$ corresponds to the humid end of the sample.

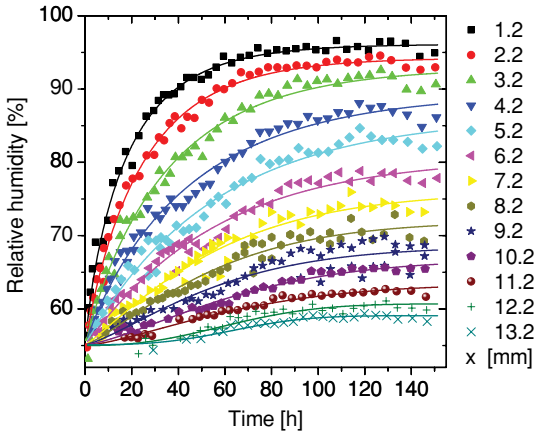


FIG. 12. (Color online) Water ingress (relative humidity) plotted as a function of time. Each curve represents a spatial position x of the sample; $x = 0$ defines the sample-humidity reservoir interface. The curves are fits to the data by a stretched exponential with a constant vertical shift [Eq. (3)], the latter shift being independent of x.

In preparing the corrected figures, we have made an improvement by imposing an additional constraint on the fits of Fig. 12: Our experimental procedure allows us to assume that $H_x(t = 0)$ is independent of x, which yields slightly different fits, in particular at positions far from the wet end. The resulting Figs. 13, 14, and 15 are slightly modified (see below). In

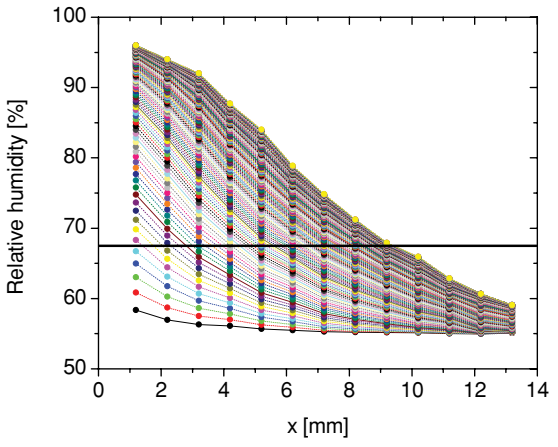


FIG. 13. (Color online) Water ingress (relative humidity) plotted as a function of position. Each curve represents a different time, one for each hour starting at 1 h (lower black, solid-drawn line). Every tenth curve is drawn as a thick, solid-drawn line corresponding to an increment of 10 h. The horizontal black line represents the intercalation threshold humidity level (67.5%) at which the intercalation transition occurs.

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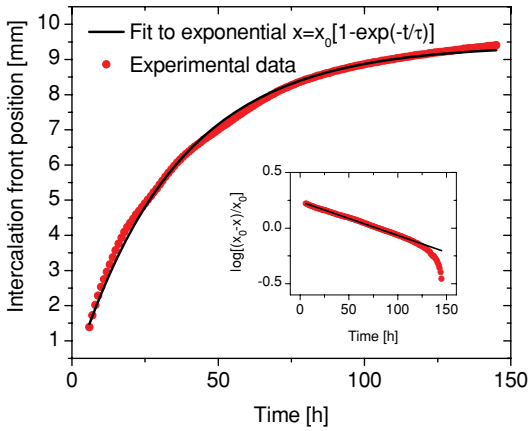


FIG. 14. (Color online) The data points shown are the intercalation front extracted from Fig. 13, along with a functional fit to an exponential (see figure legend) where $x_0 = (9.22 \pm 0.05)$ mm and $\tau = (36.2 \pm 0.6)$ h. The inset is a semilog plot indicating the suitability of the exponential.

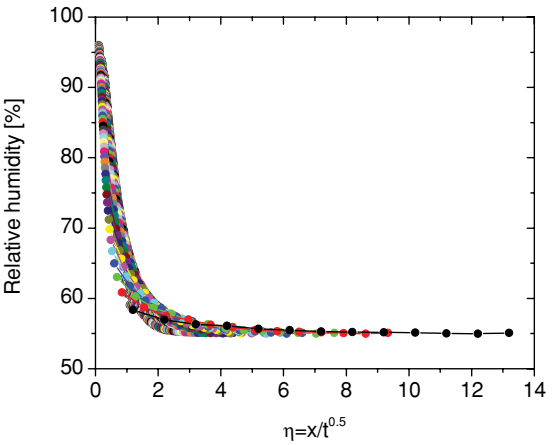


FIG. 15. (Color online) Data collapse of the obtained concentration profiles, obtained at times from 1 h $\leqslant t \leqslant$ 145 h. The data are plotted as a function of $\eta = x/t^{1/2}$.

particular, the relative humidity profiles shown for small times in Fig. 13 in this erratum do not display such large fluctuations relative to their baseline as in Fig. 13 in the paper.

No interpretation of these figures and related results are modified in any way, nor are the paper's conclusion and results.