Erratum: Clogging of soft particles in two-dimensional hoppers [Phys. Rev. E 96, 062605 (2017)]

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In this Erratum, we correct a math error and a conceptual misstatement in the publication.

In Sec. IV, we incorrectly calculated δ/d for the simulation data. The correct formula is $\delta/d = g/(2F_0)$ (in the limit of small δ). This corrected formula is a factor of 4 smaller than the erroneous formula and, accordingly, shifts the data plotted in Fig. 6. The new version of this figure is shown here, with the circles shifted to the left by a factor of 4. Given that this graph uses a logarithmic axis for δ/d that spans four decades, the shift of a factor of 4 does not appreciably change the conclusions of the plot: the experimental symbols (triangles) agree fairly well with the simulations (circles) with no adjustable parameters.

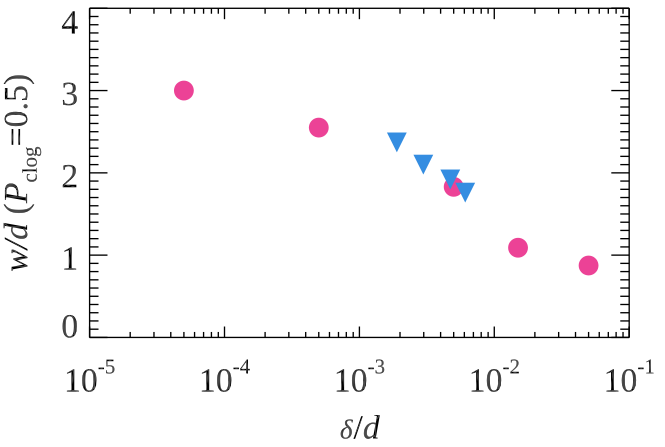

FIG. 6. Corrected Fig. 6. A plot of the size of the hopper opening w/d for which $P_{clog} = 1/2$ as a function of δ/d, the fractional deformation of a particle due to its own weight. The circles are simulation data and the triangles are from the hydrogel data. The left side of the graph corresponds to lower gravity or stiffer particles.

We also note that Eq. (3) in the paper for the droplet-wall simulation force is described as being "similar" to Eq. (1) which gives the droplet-droplet simulation force. In fact, Eq. (1) uses $\vec{r}_{ij}$ whereas Eq. (3) uses a unit vector, $\hat{r}_{i,\text{wall}}$. The key conceptual difference between the droplet-droplet force and the droplet-wall force is that the droplet-droplet force has a finite maximum as the droplet centers approach ($\vec{r}_{ij} \to 0$), while the wall force diverges as a droplet center approaches the wall. This has the fortunate effect of keeping droplets in the hopper, no matter how large the driving force of gravity is.

In summary, these issues do not affect the conclusions of the paper.

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