

Supplementary Information for

Quantitative understanding of the onset of dense granular flows

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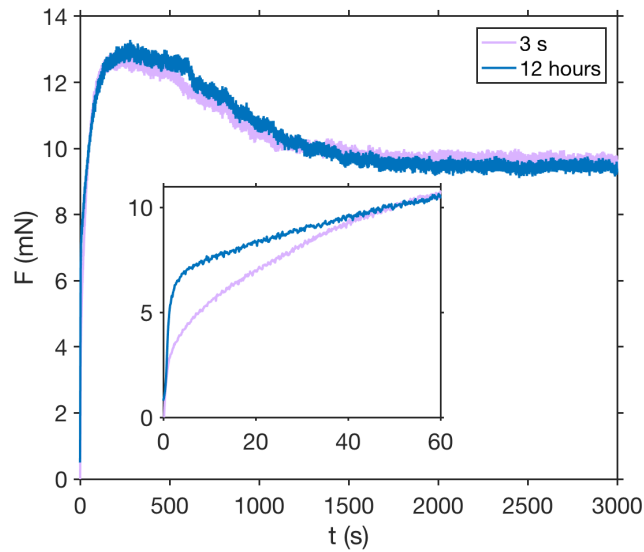


Fig. S1. Typical change in the friction transient dynamics after very long rest times. The measurement is done on the same granular system but after ~ 3 s and 12 hours rest times. The sliding speed is 86 nm/s in this experiment to have more data points close to $t = 0$. We see that the overshoot is not significantly different. If we zoom in on the very early times, after 12h the grains appear to stick to each other, making the granular medium behave initially solid-like with a linear elastic response followed by a rather abrupt yielding at the very beginning of shearing (inset). This is likely due to a small amount of capillary condensation during the long waiting period. However, the important conclusion is that after this initial phase the frictional resistance follows the same dynamics again. So, the aging under shear that is investigated here seems to be independent of the aging at rest.