

# Movie Captions

- Movie1

Supplementary movie for figure 9. The temporal evolution of the mixing for three different filling rates (left)  $\Psi = 0.4$ , (center) 0.6 and (right) 0.8. Only particles with  $y > 0$  are visualized to observe the internal flows, where a counter-rotating pair of container-size vortices exist. Note that the swirling directions are opposite for  $\Psi = 0.4$  and  $\Psi = 0.6$ , 0.8.