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Drop retention force as a function of drop size AISHA LEH, RAFAEL TADMOR, PREETI YADAV, PRASHANT BAHADUR, KUMUD CHAURASIA, LAN DANG, Lamar University — In literature, the force, f , required to slide a drop on a surface is often considered as linear with the width of the drop, w , so that f/w is constant. Dussan's equation further simplifies this proportionality in the case of advancing and receding contact angles constant with drop size, to show that $f/V^{1/3}$ is constant; V being the drop volume. We show experimentally, however, that $f/V^{1/3}$ is usually a decaying function of V . The Dussan equation shows that the change of $f/V^{1/3}$ with V is also expressed in contact angle variation. Our results, however, illustrate that contact angle variation within the scatter suffices to explain the force variation. It becomes easier to predict contact angle variation based on force variation than vice versa. $f/V^{1/3}$ appeared to decrease more with V in the systems studied.

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