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Relating contact angles, drop size and Line Energy PREETI YADAV, PRASHANT BAHADUR, KUMUD CHAURASIA, RAFAEL TADMOR, Lamar University — The relation between drop radius, r, the force to slide it, and the advancing and receding contact angles, θ_A and θ_R, has been studied. To keep the line energy (energy per $2\pi r$) independent of r, the modified Young equation predicts that θ_A and θ_R change considerably with r. As shown by many investigators, θ_A and θ_R change negligibly, if at all, with r. We show why the modified Young equation is correct and still θ_A and θ_R should hardly change with r. Our results suggest that the Laplace pressure is a significant parameter in inducing the line energy.

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