

Why soap films are stable

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Soap bubbles and films are seen everywhere from household kitchens to large-scale commercial factories. In science, flowing soap films are an useful tool to simulate two-dimensional flows. The liquid films are several micron-thin, but they are mechanically stable and sustain the form for a long time. The longevity of the soap films originate not only from the lower surface tension of soapy water but also from the elasticity that arises due to the change of the surface tension under mechanical disturbance. We introduce the experiments to measure the surface tension and the elasticity, and the measurement will be rationalized using the Langmuir adsorption isotherm.