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**The evolution of a sessile vesicle's shape during desiccation processes**[1] MAURICE BLOUNT, MICHAEL MIKSIS, STEPHEN DAVIS, Northwestern University — We present a model that describes the shape evolution of a vesicle that is attached to a substrate. During desiccation processes the vesicle contains an aqueous solution of sugar and is surrounded by an aqueous solution of sugar of higher concentration. Transport of water across the vesicle's semi-permeable membrane is driven by concentration and pressure gradients applied across it. As water is drawn out of the vesicle, its volume decreases but its surface area is conserved owing to the membrane's incompressibility. The consequent buckling of the membrane is impeded by its bending stiffness and by the viscous stresses in the flow that are generated by the membrane's motion. We use our model to describe the various physical nonlinear effects that evolve during the process.

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