

Evaporation modes of sulfur mustard from surfaces: constant contact angle vs. constant contact area

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Sulfur mustard is a blister chemical agent to form blisters on exposed skin. It had been used as a chemical weapon in world war I. Herein we report on the mass profile evolution of a slowly evaporating liquid sulfur mustard drop on various surfaces: glass, stainless steel, and aluminum. We observed the two distinguished modes of evaporation: **at constant contact angle area with diminishing contact angle** and **at constant contact area with diminishing contact angle**. We also observed a mixed type where the mode would change from one to the other at some point in the course of evaporation. The evaporation mechanism is important to predict the evaporation rate and residual mass at any time in the life of the drop based on the spherical cap shape. It can have some bearing on persistence in the environment.