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Fabrication of Super-repellent Films for Effective Chemical Shielding.[1] HAMED VAHABI, WEI WANG, SANLI MOVAFAGHI, ARUN KOTA, Colorado State University — Chemical shielding has known as a potential application of superomniphobic coatings due to their capability in repelling virtually all liquids from the solid surfaces. However, fabrication of most superomniphobic surfaces requires complex process conditions or specialized and expensive equipment or skilled personnel. In order to circumvent these issues and make them end-user-friendly, we developed the free-standing, flexible, superomniphobic films. These films can be stored and delivered to the end-users, who can readily attach them to virtually any surface (even irregular shapes) and impart superomniphobicity. The hierarchical structure, the re-entrant texture, and the low solid surface energy render our films superomniphobic for a wide variety of liquids. We demonstrate that our free-standing, flexible superomniphobic films are well-suited for chemical resistance applications because of the excellent chemical stability of the F-SiO2 particles used in fabrication of the films. [http://dx.doi.org/10.1063/1.4989577]

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