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Free-standing, Flexible Superomniphobic Films[1] HAMED VAHABI, WEI WANG, SANLI MOVAFAGHI, ARUN K.KOTA, Colorado State Univ — 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 have applications in enhanced chemical resistance and enhanced weight bearing.

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