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Abstract: The wettability of polyimide surfaces microstructured using KrF laser radiation at fluences above the material ablation threshold was studied by static contact angle measurements. The laser-treated surfaces present a morphology consisting of conical features whose dimensions and areal density depend on the fluence. The effect of these parameters on the surface apparent contact angle depends on the wetting regime. When wetting occurs in the homogeneous regime, the apparent contact angle of the treated surfaces increases with the radiation fluence because the cone dimensions increase. In contrast, when wetting occurs in the heterogeneous regime, the apparent contact angle increases with the radiation fluence because the average distance between cones increases. The apparent water contact angle of the laser-treated surfaces can reach values as high as 162 degrees, as compared to 75 degrees for virgin polyimide. (C) 2010 Elsevier B.V. All rights reserved.

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