



Preparation methods and characteristics of fluorinated polymers for mold replication

Kentaro Tsunozaki *, Yasuhide Kawaguchi

Asahi Glass Co., Ltd., Research Center, 1150 Hazawa-cho, Kanagawa-ku, Yokohama-shi, Kanagawa 221-8755, Japan

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ABSTRACT

Mold replication process using fluorinated materials by thermal nanoimprint and UV nanoimprint was investigated by three different experiments. Firstly, the influence of particulate contamination was examined. It was estimated that the damage to the master mold by particles can be suppressed by applying a thicker polymer layer for mold replication. Secondly, it was shown that the surface properties of UV curable resin containing fluorinated components can be controlled by the curing conditions. Thirdly, the stability of the surface properties of the fluorinated materials was compared. The surface of the perfluorinated polymer showed high stability against UV imprint. UV cured molds have lower stability but they are suitable for disposable molds which can be used for several times to several tens of times.

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