AZ nLOF Series of Photoresist Films on Monocrystalline Silicon

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Abstract

Negative photoresist (PR) films of AZ nLOF 2020, AZ nLOF 2070, and AZ nLOF 5510 with thicknesses of 0.99–6.0 μm, deposited on the surface of silicon wafers by centrifugation are studied by microindentation and IR Fourier spectroscopy using a diffuse reflection attachment. It is established that PR films behave as elastic-plastic materials in which tensile elastic stresses are present. The most intense lines in the absorption spectra of the PR AZ nLOF series are the lines of stretching vibrations of the aromatic ring and pulsation vibrations of the carbon skeleton of the aromatic ring, as well as the wide structured band with several maxima in the range of 1050–1270 cm^{-1} and the band related to the CH_2-bridge. It is shown that the line corresponding to the oscillations of the CH_3 groups with the maximum at 2945 cm^{-1} is caused by the solvent. The differences in the spectra of the AZ nLOF 2020 and AZ nLOF 2070 PRs are related to the presence of the residual solvent in the films and the interaction of its molecules with the aromatic rings of the main component of the PRs.

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Ethics declarations

The authors of this work declare that they have no conflicts of interest.

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