

Characterization and simulation of acid-catalyzed DUV positive

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ABSTRACT

An investigation of the dissolution behavior of an acid catalyzed deep ultraviolet (DUV) positive resist has been completed. The immersion develop dissolution rate as a function of dose and post exposure bake temperature was measured by Perkin Elmer Dissolution Rate Monitor (DRM) for single layer resist on a silicon substrate. A reaction-diffusion model has been built to describe the dependence of development rate on exposure dose and post exposure bake (PEB) time/temperature. A mixed diffusion model has been built to account for catalyst diffusion and quenching. Developed images have been compared with simulated image quality, line width, and process window.