

3D Feature profile simulation for oxide etching under fluorocarbon/oxygen mixture plasma

박재형, 유혜성, 옥영근, 유동훈¹, 임연호[†]
전북대학교; ¹경원테크
(yeonhoim@jbnu.ac.kr[†])

Recently, plasma etching for sub-10nm device is emerging as one of the challenges in semiconductor manufacturing process. Lack of basic understanding of most of these processes makes it difficult to develop next-generation process due to their complexity. As a part of an effort to overcome these limitations, we have developed a 3D feature profile simulator strongly coupled with Zero-D bulk plasma module. In this work, the 3D feature profile simulator is integrated with a reasonable plasma database for bulk and surface reactions for fluorocarbon/oxygen mixture plasma etching. The effect of oxygen in fluorocarbon plasma is highlighted in 3D feature profile simulation for contact hole etch, and verified with experimental data.