

Dry Etching - DTU Orbit (09/11/2017)

Dry Etching

Production of large-area flat panel displays (FPDs) involves several pattern transfer and device fabrication steps that can be performed with dry etching technologies. Even though the dry etching using capacitively coupled plasma is generally used to maintain high etch uniformity, due to the need for the higher processing rates in FPDs, high-density plasma processing tools that can handle larger-area substrate uniformly are more intensively studied especially for the dry etching of polysilicon thin films. In the case of FPD processing, the current substrate size ranges from 730 × 920 mm (fourth generation) to 2,200 × 2,500 mm (eighth generation), and the substrate size is expected to increase further within a few years. This chapter aims to present relevant details on dry etching including the phenomenology, materials to be etched with the different recipes, plasma sources fulfilling the dry etching requirements, and advantages of dry etching over wet processing. Current status and future trends are also presented.

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