

Abstract

This method for processing a target object includes steps ST1 to ST4. The target object has an organic polymer layer and a resist mask on a substrate. In step ST1, the target object is electrostatically attached to an electrostatic chuck in a plasma processing apparatus. In step ST2, the organic polymer layer is etched through the resist mask by means of a plasma of a first gas. In step ST3, the target object is detached from the electrostatic chuck while a plasma of a second gas is generated. In step 4, the resist mask is peeled off. The second gas is either oxygen gas or a mixture of oxygen gas and a rare gas having an atomic weight lower than that of argon gas.

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