# DESCRIPTION

## Title of Invention

**SUBSTRATE PROCESSING METHOD, SUBSTRATE PROCESSING DEVICE, AND SUBSTRATE PROCESSING SYSTEM**

## Technical Field

[0001] Example embodiments of the present disclosure relate to a substrate processing system.

## Background Art

[0002] A substrate processing apparatus is used for processing substrates. The substrate processing apparatus includes a chamber and a substrate support. The substrate support is disposed in the chamber. The following Patent Literature 1 discloses a technique of providing a diamond-like coating on a surface of the substrate support.

## Citation List

### Patent Literature

[0003] Japanese Unexamined Patent Application Publication (Translation of PCT Application) No. 2007-527625

## Summary of Invention

### Technical Problem

[0004] The present disclosure provides a technology to suppress a damage of a back surface of a substrate.

### Solution to Problem

[0005] According to a first aspect of the present invention, there is provided a substrate processing method. The substrate processing method includes placing a

substrate on an electrostatic chuck of a substrate support of a substrate processing apparatus. The electrostatic chuck includes a substrate support surface. The substrate includes a back surface and an organic layer formed in advance on the back surface. The substrate is placed on the electrostatic chuck so that the organic layer is in contact with the substrate support surface. The substrate processing method further includes holding the substrate by electrostatic attraction using the electrostatic chuck. The substrate processing method further includes processing the substrate in the substrate processing apparatus.

[0005a] According to a second aspect of the present invention, there is provided a substrate processing apparatus comprising:

a chamber;

a substrate support that is disposed in the chamber and includes an electrostatic chuck having a substrate support surface; and

a controller,

wherein the controller is configured to perform

placing a substrate on the electrostatic chuck, the substrate including a back surface and an organic layer formed in advance on the back surface, and the substrate being placed on the electrostatic chuck so that the organic layer is in contact with the substrate support surface,

holding the substrate by electrostatic attraction using the electrostatic chuck, and

processing the substrate in the chamber.

[0005b] According to a third aspect of the present invention, there is provided a substrate processing system comprising:

a plasma processing apparatus which is the substrate processing apparatus as defined in the second aspect;

a film forming apparatus configured to form the organic layer; and

a removal apparatus configured to remove the organic layer.

[0005c] According to a fourth aspect of the present invention, there is provided a substrate processing system comprising:

the substrate processing apparatus as defined in the second aspect; and

a film forming apparatus configured to form the organic layer, wherein

the film forming apparatus includes

a film forming chamber,

a support body configured to support the substrate in the film forming chamber,

a first gas supply port that is disposed at a position facing a center of an upper surface of the substrate supported by the support body of the film forming apparatus and that is provided to supply an inert gas toward the center of the upper surface,

a second gas supply port that is disposed at a position facing an edge region of the upper surface of the substrate supported by the support body of the film forming apparatus and that is provided to supply the inert gas toward the edge region,

a third gas supply port that is disposed at a position facing the back surface of the substrate supported by the support body of the film forming apparatus and that is provided to supply a film forming

gas for forming the organic layer to the back surface, and

an exhaust port that is disposed outside an edge of the substrate to exhaust a gas in the film forming chamber.

**Advantageous Effects of Invention**

[0006] According to the one example embodiment, a technology to suppress a damage of a back surface of a substrate is provided.

**Brief Description of Drawings**

[0007] FIG. 1 is a diagram for illustrating an example configuration of a plasma processing system.

FIG. 2 is a diagram for illustrating an example configuration of a capacitively coupled plasma processing apparatus.

FIG. 3 is a cross-sectional view illustrating a substrate support according to one example embodiment.

FIG. 4 is a cross-sectional view illustrating a substrate support according to one example embodiment.

FIG. 5 is a flowchart illustrating a substrate processing method according to one example embodiment.

FIG. 6 is a cross-sectional view of a substrate according to one example embodiment.

(a) of FIG. 7 to (d) of FIG. 7 are each diagrams illustrating