CLAIMS

1. A system for controlling a scrubbing process for removing a foreign material existing on a substrate, the substrate processing control system comprising:

a particle distribution estimation unit that detects a particle on the substrate and estimates the particle distribution based on the detection result;

a scrubbing region setting unit for setting a scrubbing region on the substrate based on the particle distribution;

a scrubbing member selection unit for selecting a scrubbing member based on the size of the scrubbing region;

a model storage holding a recipe generating model that defines the relation between an input node and an output node, the input node being an attribute of the scrubbing region including the density of the particle, the output node comprising a recipe for a scrubbing process;

a scrubbing recipe generator that puts an attribute of the scrubbing region set by the scrubbing region setting unit into the input node of the recipe generating model and determines a scrubbing recipe for scrubbing the scrubbing region; and

a scrubbing recipe transmitter for transmitting data of the scrubbing recipe to a substrate processing apparatus that performs scrubbing.

2. The substrate processing control system according to claim 1, wherein the input node of the recipe generating model comprises a plurality of input nodes that are the outline of the scrubbing region and the density of the particle.

3. The substrate processing control system according to claim 1 or 2, wherein the scrubbing region setting unit changes a criterion for setting a scrubbing region depending on whether the precision or throughput of substrate processing is given priority.

4. The substrate processing control system according to any of claims 1 to 3, comprising a simulator that simulates the particle distribution of a substrate and throughput to be achieved by scrubbing according to the scrubbing recipe and determines whether the scrubbing recipe is to be adopted or not based on the simulation result.

5. The substrate processing control system according to claim 4,

wherein the model storage holds a plurality of recipe generating models of different types,

wherein the scrubbing recipe generator determines a plurality of scrubbing recipes using different recipe generating models, and

wherein the simulator determines a single scrubbing recipe based on simulation results of a plurality of scrubbing recipes determined by using different recipe generating models.

6. The substrate processing control system according to claim 5, comprising a learning unit for performing learning on the recipe generating model based on results of simulations performed on a plurality of scrubbing regions by the simulator.

7. The substrate processing control system according to claim 5, comprising a learning unit for performing learning on the recipe generating model based on a result of scrubbing actually performed according to the scrubbing recipe.

8. The substrate processing control system according to claim 4, having an actual result data storage holding a previously generated scrubbing recipe and data on the particle distribution of a substrate scrubbed by using the scrubbing recipe,

wherein the substrate processing control system reads from the actual result data storage a predetermined number of scrubbing recipes approximate to the particle distribution estimated by the particle distribution estimation unit, and

wherein the simulator determines a single scrubbing recipe based on simulation results of a plurality of scrubbing recipes.

9. The substrate processing control system according to any of claims 4 to 8, comprising an output unit for outputting a simulation result obtained by the simulator.

10. The substrate processing control system according to any of claims 4 to 9, wherein the simulator comprises a simulation model.

11. The substrate processing control system according to claim 10, wherein the simulation model is learned based on a result of scrubbing actually performed according to the scrubbing recipe.

12. The substrate processing control system according to any of claims 1 to 11, comprising a data receiver for receiving data on scrubbing transmitted from a plurality of substrate processing apparatuses connected to the data receiver via a network.

13. A method of a controller controlling a scrubbing process for removing a foreign material

existing on a substrate, the substrate processing control method comprising the steps of:

the controller detecting a particle on the substrate and estimating the particle distribution based on the detection result;

the controller setting a scrubbing region on the substrate based on the particle distribution;

the controller selecting a scrubbing member based on the size of the scrubbing region;

the controller reading from a storage a recipe generating model that defines the relation between an input node and an output node, the input node being an attribute of the scrubbing region including the density of the particle, the output node comprising a recipe for a scrubbing process;

the controller putting an attribute of the scrubbing region into the input node of the recipe generating model and determining a scrubbing recipe for scrubbing the scrubbing region; and

the controller transmitting data of the scrubbing recipe to a substrate processing apparatus that performs scrubbing.

14. A program for controlling a scrubbing process for removing a foreign material existing on a substrate, the program causing a computer to execute the steps of:

detecting a particle on the substrate and estimating the particle distribution based on the detection result;

setting a scrubbing region on the substrate based on the particle distribution;

selecting a scrubbing member based on the size of the scrubbing region;

reading from a storage a recipe generating model that defines the relation between an input node and an output node, the input node being an attribute of the scrubbing region including the density of the particle, the output node comprising a recipe for a scrubbing process;

putting an attribute of the scrubbing region into the input node of the recipe generating model and determining a scrubbing recipe for scrubbing the scrubbing region; and

transmitting data of the scrubbing recipe to a substrate processing apparatus that performs scrubbing.