CLAIMS

What is claimed is:

1. A system comprising:

a memory storing instructions to facilitate an etch recipe development process; and

at least one processing device operatively coupled to the memory, wherein the instructions, upon execution by the at least one processing device, cause the at least one processing device to facilitate an the etch recipe development process by performing a plurality of operations comprising:

receiving a request to initiate an iteration of an etch process using an etch recipe to etch a plurality of materials each located at a respective one of a plurality of reflectometry measurement points;

obtaining, from an optical detector, first material thickness data for each of the plurality of materials a first material and second material thickness data for a second material resulting from the an iteration of the an etch process using an etch recipe, wherein the first material is located at a first reflectometry measurement point and the second material is located at a second reflectometry measurement point different from the first reflectometry measurement point; and

determining one or more etch parameters based on at least the first material thickness data and the second material thickness data.

2. The system of claim 1, wherein the first material and the second material are eacheach material of the plurality of materials is disposed on a corresponding respective coupon on a carrier wafer.

3. The system of claim 1, wherein the plurality offirst reflectometry measurement points corresponds pertain to a plurality offirst collection cylinders associated with a plurality offirst collimators located above the plurality offirst reflectometry measurement points, and wherein the second reflectometry measurement point corresponds to a second collection cylinder associated with a second collimator located above the second reflectometry measurement point.

4. The system of claim 1, wherein the operations further comprise enabling theat least one processing device is operatively coupled to an optical detector for obtaining to selectively

measure the first material thickness data and the second material thickness datafor each of the plurality of materials.

5. The system of claim 4, wherein the at least one processing device is operatively coupled to a switch device to enable the plurality of reflectometry measurement points to be selectively measured with the optical detector.

65. The system of claim 1, wherein the one or more etch parameters comprise at least one of: etch selectivity or etch rate.

76. The system of claim 1, wherein the plurality of operations further comprises:

determining that whether the one or more etch parameters fail to meet an etch parameter goal;

obtaining a modified etch recipe in response to determining that the one or more etch parameters fail to meet the etch parameter goal; and

initiating an second iteration of the modified etch process using the modified etch recipeto etch the plurality of materials.

87. The system of claim 76, wherein obtaining the modified etch recipe further comprises automatically modifying one or more etch recipe conditions of the etch recipe.

98. The system of claim 87, wherein the one or more etch recipe conditions comprise at least one of: gas type, gas concentration, pressure, RF power, or RF pulsing.

109. The system of claim 1, wherein the plurality of operations further comprises:

determining that whether the one or more etch parameters meet an etch parameter goal; and

terminating the etch recipe development process in response to determining that the one or more etch parameters meet the etch parameter goal.

1110. A method comprising:

obtaining, by at least one processing device from an optical detector, first material thickness data for a first material and second material thickness data for a second material resulting from an iteration of an etch process using an etch recipe, wherein the first material

is located at a first reflectometry measurement point and the second material is located at a second reflectometry measurement point different from the first reflectometry measurement point; and

determining, by the at least one processing device, one or more etch parameters based on at least the first material thickness data and the second material thickness datareceiving, by at least one processing device, a request to initiate iteration of an etch process using an etch recipe to etch a plurality of materials each located at a respective one of a plurality of reflectometry measurement points, the etch process being associated with an etch recipe development process;

obtaining, by the at least one processing device, material thickness data for each of the plurality of materials resulting from the iteration of the etch process; and

determining, by the processing device, one or more etch parameters based on the material thickness data.

1211. The method of claim 1110, wherein each of the plurality of materials corresponds to one of a plurality of coupons the first material and the second material are each disposed on a respective coupon on a carrier wafer.

12. The method of claim 10, wherein the first reflectometry measurement point corresponds to a first collection cylinder associated with a first collimator located above the first reflectometry measurement point, and wherein the second reflectometry measurement point corresponds to a second collection cylinder associated with a second collimator located above the second reflectometry measurement point.

13. The method of claim 1110, wherein the one or more etch parameters comprise at least one of: etch selectivity or etch rate.

14. The method of claim 1110, further comprising:

determining, by the at least one processing device, that whether the one or more etch parameters fail to meet an etch parameter goal;

obtaining, by the at least one processing device, a modified etch recipe in response to determining that the one or more etch parameters fail to meet the etch parameter goal; and

initiating, by the at least one processing device, an second iteration of the etch process using the modified etch process to etch the plurality of materialsrecipe.

15. The method of claim 14, wherein obtaining the modified etch recipe further comprises automatically modifying one or more etch recipe conditions of the etch recipethe one or more etch recipe conditions comprise at least one gas type, gas concentration, pressure, RF power, or RF pulsing.

16. The method of claim 11 10, further comprising:

determining, by the at least one processing device, that whether the one or more etch parameters meet an etch parameter goal; and

terminating, by the at least one processing device, the an etch recipe development process in response to determining that the one or more etch parameters meet the etch parameter goal.

17. A system comprising:

a sensor head comprising a plurality of collimators corresponding to a plurality of collection cylinders located above a plurality of reflectometry measurements points, wherein the plurality of reflectometry measurement points corresponds to locations of a plurality of materials;

an optical detector, operatively coupled to a switch device, to selectively measure material thickness data resulting from an iteration of an etch process;

a memory storing instructions to facilitate an etch recipe development processswitch device, operatively coupled to the sensor head and the optical detector, to enable the plurality of reflectometry measurement points to be selectively measured with the optical detector; and

at least one processing device operatively coupled to the memory, the optical detector and the switch device, wherein the instructions, upon execution by the at least one processing device, cause the at least one processing device to facilitate an the etch recipe development process by determining one or more etch parameters based on at least first material thickness data for a first material and second material thickness data for a second material, wherein the first material is located at a first reflectometry measurement point and the second material is located at a second reflectometry measurement point different from the first reflectometry measurement pointusing selective measurements of the plurality of reflectometry measurement points.

18. The system of claim 17, wherein each the first material of the plurality of materials isand the second material are each disposed on a respective coupon on a carrier wafer.

19. The system of claim 17, wherein the first reflectometry measurement point corresponds to a first collection cylinder associated with a first collimator located above the first reflectometry measurement point, and wherein the second reflectometry measurement point corresponds to a second collection cylinder associated with a second collimator located above the second reflectometry measurement point at least one processing device is to facilitate the etch recipe development process by performing a plurality of operations comprising:

initiating an iteration of an etch process to etch the plurality of materials using an etch recipe;

obtaining material thickness data for each of the plurality of materials resulting from the iteration of the etch process;

determining one or more etch parameters based on the material thickness data;

determining that the one or more etch parameters fail to meet an etch parameter goal;

obtaining a modified etch recipe in response to determining that the one or more etch parameters fail to meet the etch parameter goal by automatically modifying one or more etch recipe conditions of the etch recipe; and

initiating an iteration of the modified etch process to etch the plurality of materials.

20. The system of claim 17, wherein the one or more etch parameters comprise at least one of: etch selectivity or etch rate at least one processing device is to facilitate the etch recipe development process by performing a plurality of operations comprising:

initiating an iteration of an etch process to etch the plurality of materials using an etch recipe;

obtaining material thickness data for each of the plurality of materials resulting from the iteration of the etch process;

determining one or more etch parameters based on the material thickness data;

determining that the one or more etch parameters meet an etch parameter goal; and

terminating the etch recipe development process in response to determining that the one or more etch parameters meet the etch parameter goal.