Claims

1. A defect inspection apparatus comprising:

a defect detection unit configured to acquire first defect information of a substrate; and

a comparative information acquisition unit configured to acquire a result of comparison between predetermined defect information stored in a storage unit and the first defect information, wherein

the substrate comprises multiple layers, and

wherein the substrate further comprises an optical thin film having a thickness of 10 nm or less as an outermost surface layer, and

wherein the comparative information acquisition unit is configured to acquire positional information on a defect where a part of the optical thin film is removed.

2. The defect inspection apparatus according to claim 1, wherein

each of the first defect information and the predetermined defect information includes the positional information and a size of the defect.

3. The defect inspection apparatus according to claim 1, wherein

the first defect information is acquired by irradiating inspection light, and

the inspection light for the substrate is moved by scanning the inspection light or moving the substrate.

4. A method for inspecting defect comprising:

acquiring first defect information of a substrate comprising multiple layers, the substrate further comprising an optical thin film having a thickness of 10 nm or less as an outermost surface layer,

cleaning the substrate by a substrate processing unit after acquiring the first defect information,

acquiring second defect information of the substrate after cleaning the substrate; and

acquiring a result of comparison between the first defect information and the second defect information and acquiring positional information on a defect where a part of the optical thin film is removed.

5. A method for manufacturing photomask blank comprising:

selecting a photomask blank by using the method for inspecting defect according to claim 4.

6. The defect inspection apparatus according to claim 1, wherein

the defect detection unit is configured to acquire second defect information on a defect before a predetermined processing for the substrate by a substrate

processing unit,

the second defect information is used as the predetermined defect information, and

the comparative information acquisition unit is configured to acquire the result of comparison between the second defect information and the first defect information.

7. The defect inspection apparatus according to claim 6, wherein the predetermined processing is cleaning processing of the substrate.

8. The defect inspection apparatus according to claim 1, wherein

the comparative information acquisition unit is configured to acquire a place where change has occurred as the positional information based on change information obtained as the result of comparison between the predetermined defect information and the first defect information.

9. The defect inspection apparatus according to claim 8, further comprising:

a display unit that displays an enlarged image according to the positional information.