JP63239820A2:WASHING METHOD FOR SEMICONDUCTOR DEVICE

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H01L 21/304; B08B 3/10;

Purpose: To enable washing without breaking and damaging a wafer by generating bubbles, using dust on the surface of the wafer as nuclei, and removing dust from the surface of the wafer by wrapping dust with the bubbles.
Constitution: A gas 11 such as carbon dioxide is dissolved into a washings 5 in a pressure vessel 8, and introduced into a washing tank 1 by a liquid introducing pipe 6. The washings 5 is induced into the pressure vessel 8 through a liquid introducing pipe 9. The gas 11 is ejected from holes 10A for a gas introducing pipe 10 mounted to the outer wall of the pressure vessel 8, and dissolved into the washings 5. A pressure regulating value 7 is set up between a section up to the washing tank 1 from the pressure vessel 8, and pressure in the pressure vessel 8 is made higher than that in the wash tank 1. When the washings 5 in the pressure vessel 8 reaches to the scouring kier 1, it is brought to a supersaturated state to generate bubbles 11. When dust 12 adheres on the surfaces of wafers 4, the dust 12 are change into nuclei and bubbles 11 are generated. Consequently, dust 12 is wrapped with the bubbles 11, and desorbed from the wafers 4 together with the bubbles 11 in a short time and floated on the surface of the washings 5. The floated dust 2 is carried away outside the washing tank 1 together with the flow 5A of the washings 5 because the washings 5 flows out 5A at all times, thus washing the wafer 4 without break-down and damage.

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(71) Applicant: **HITACHI LTD**

(72) Inventor: **OGAYA KAORU**

(74) Representative:

(54) WASHING METHOD FOR SEMICONDUCTOR DEVICE

(57) Abstract:

PURPOSE: To enable washing without breaking and damaging a wafer by generating bubbles, using dust on the surface of the wafer as nuclei, and removing dust from the surface of the wafer by wrapping dust with the bubbles.

CONSTITUTION: A gas 11 such as carbon dioxide is dissolved into a washings 5 in a pressure vessel 8, and introduced into a washing tank 1 by a liquid introducing pipe 6. The washings 5 is induced into the pressure vessel 8 through a liquid introducing pipe 9. The gas 11 is ejected from holes 10A for a gas introducing pipe 10 mounted to the outer wall of the pressure vessel 8, and dissolved into the washings 5. A pressure regulating value 7 is set up between a section up to the washing tank 1 from the pressure vessel 8, and pressure in the pressure vessel 8 is made higher than that in the

to a supersaturated state to generate bubbles 11. When dust 12 adheres on the surfaces of wafers 4, the dust 12 are change into nuclei and bubbles 11 are generated. Consequently, dust 12 is wrapped with the bubbles 11, and desorbed from the wafers 4 together with the bubbles 11 in a short time and floated on the surface of the washings 5. The floated dust 2 is carried away outside the washing tank 1 together with the flow 5A of the washings 5 because the washings 5 flows out 5A at all times, thus washing the wafer 4 without break-down and damage.