ABSTRACT

A heat treatment apparatus according to the present invention includes a reaction vessel having vertically divided three zones; a substrate holder for supporting thereon a plurality of substrates; heaters disposed on a side of the reaction vessel to correspond to the respective zones; and controlling parts disposed on a side of the reaction vessel to correspond to the respective zones. Temperature detecting parts for detecting temperatures in the respective zones are connected to the controlling parts, respectively. The temperature detecting part for a middle zone is connected to both of the controlling parts corresponding to an uppermost zone and a lowermost zone. When the substrate holder is loaded into the reaction vessel, each of the controlling part corresponding to the uppermost zone and the lowermost zone calculates control signal based on a detected temperature value detected by the temperature detecting part corresponding to the middle zone, and outputs the control signal for controlling the corresponding heater.