ABSTRACT

REAL TIME MONITORING OF PARTICULATE CONTAMINATION IN A WAFER PROCESSING CHAMBER

An apparatus and method for use is described which permits real time monitoring of build-up of particulate contamination in a wafer processing chamber. The apparatus is capable of monitoring particle build up in regions of a processing chamber which are not accessible by traditional optical particle scanners. An accelerometer is fastened to a body in the chamber upon which the contamination is deposited. The body is subjected to vibrations and produces a vibration signal which is detected by the accelerometer. The signal is filtered, digitized, and processed by a digital signal analyzer which computes a frequency spectrum of vibration amplitudes. Frequencies in a selected band of the frequency spectrum are directly proportional to the degree of particulate build up on the body. The invention is applied to a wafer annealing tool which has a rotatable wafer platform wherein particles deposit on the exposed back side of the wafer during processing. The particles emanate from bearings in the rotation drive. The accelerometer is attached to the body which supports the wafer platform and drive bearings. The method and apparatus have been shown to be reliable and accurate as well as cost effective and is easily implemented.

(Figure 6)