ABSTRACT

The present invention is directed to an apparatus for suppressing abnormal electrical discharge used for vacuum equipment which supplies power from a high-frequency power source to a plasma reaction chamber and executes a film formation process, provided with a power controller for controlling the high-frequency power source based on a deviation between a power command value and a power feedback value, and a cutoff controller for cutting off the power supply from the high-frequency power source to the plasma reaction chamber, based on a detection of the abnormal electrical discharge within the plasma reaction chamber. The cutoff controller exercises a first handling cutoff control and a second handling cutoff control, each having a different cutoff time. The first handling cutoff allows ions to remain in the plasma reaction chamber, and exercises the cutoff control over the high-frequency power source within a time duration which allows an arcing element to disappear. On the other hand, the second handling cutoff control exercises cutoff control over the high-frequency power source within a time range which allows abnormal arc ions to disappear. Accordingly, it is possible to supply power to plasma stably.