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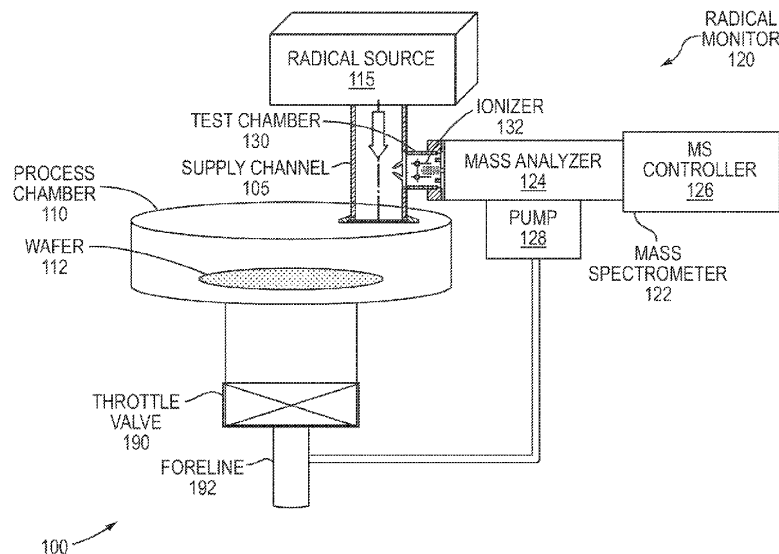


FIG. 1A

(57) Abstract: A monitoring system detects and measures a quantity of radical particles within a gas. A test chamber is coupled to a flow channel that transmits a gas. The test chamber defines an aperture connecting the test chamber and the flow channel, and the aperture permits a subset of the gas to enter the test chamber from the flow channel. An ionizer is positioned within the test chamber and generates radical ions from radical particles of the subset of the gas. A mass spectrometer measures a quantity of the radical ions, thereby providing a measurement of the radical particles in the gas.

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