

HR-IVA® (HIGH RESOLUTION IVA® TESTING)

TEST SUBMISSION FORMS

[Gas Analysis Form - NY](#)

[Gas Analysis Form - CO](#)

[Component Submission
Form - NY](#)

ORS Laboratories are ISO 9001:2015 and AS9100D Certified | 1 (855) ORS-LABS



TESTING METHODS

MIL-STD

ASTM

JEDEC

IEC

TELCORDIA

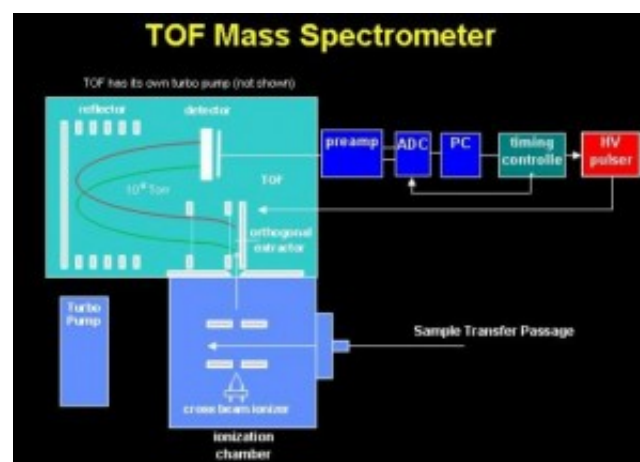
ICP



The HR-IVA® Analyzer was built specifically for testing cavity gases in very small packages. This new technology provides tremendous sensitivity compared to standard Quadrupole techniques which are applicable to samples larger than 0.01 cc. In a three (3) year development program to

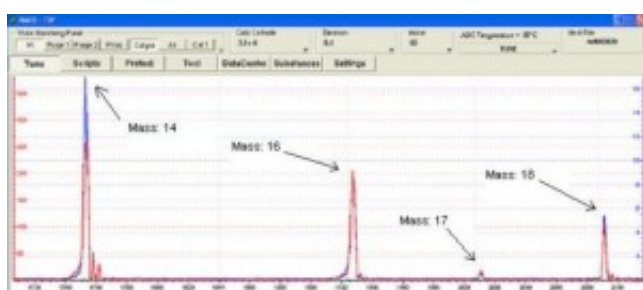
address industry trends to manufacture smaller and smaller devices, ORS has developed innovative calibration and testing technology for measuring small volume devices. We developed all metal seals calibrator technology that allows us to calibrate the system at volumes ranging from 0.01cc down to 1nl (1X10-6cc). ORS developed a high speed, high mass resolution, and highly sensitive Time-Of-Flight (TOF) spectrometer to test the tiniest of devices with significant advancement in signal-to-noise. ORS is the only DLA suitable laboratory qualified to test device cavities <0.01cc. **HR-IVA® System Specifications**

- Spectra Acquisition speed: 1 full spectra every 20 μ s.
- Mass Range: mass 2 to 150 standard (2-500 capable)
- Mass resolution: 0.1 AMU
- Calibration Fixtures: 0.0001, 0.0005, 0.001, 0.005 and 0.01 cc
- Single sample mounting procedure
- Sample temperature: 100°C standard (room temperature to 150°C capable)
- Sample internal free volume: 1nl (1X10-6cc) to infinite volume.



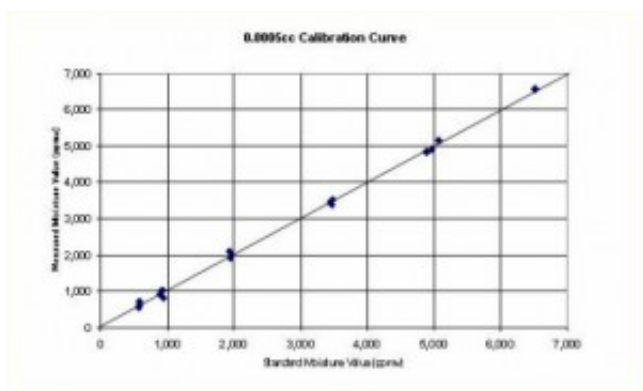
TOF Design

The sample gas from the device passes through a small transfer passage into the ion source. As the sample gas passes by, ions of the gas are created. Every 20 μ s, a packet of ions are extracted into the TOF by a high voltage pulse. The ions then traverse the flight path to the ion count detector. The time that it takes each ion to reach the detector is related to the mass-to-charge ratio. Ions reaching the detector are counted and saved in the PC at a 2 GHz sampling rate.



Mass Resolution of the TOF:

Mass 14 from nitrogen, mass 16 from oxygen, mass 17 and 18 from water.



Calibration curve:

Moisture in nitrogen in a 0.0005 cc calibrator.