

Product Flyer

PETSense

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V&F
Analyse- und
Messtechnik
GmbH

Process Mass Spectrometer PETSense

Fast Response and Selectivity

Knowing the customer's high-profile expectations combined with more than 40 years of experience, the model PETSense reflects the latest development step within the series of our process mass spectrometers. The PETSense is based on the Ion Molecule Reaction (IMR) mass spectrometer principle. Unlike others, the IMR mass spectrometry offers a unique fast response time, a wide dynamic range, selective measurements and lowest detection limits.

Proven Technology

The PETSense can exactly identify contaminated bottles (petrochemicals, aromatic and volatile hydro-carbons) and thus they can be immediately removed. At a frequency rate of 40.000 bottles per hour. This means that every 60 milliseconds, a bottle is checked. Neutral air is blown into the PET bottle before the measurement process. Then the gas-air mixture of the bottle is sucked out contact free by a vacuum pump system and potentially impurities are reviewed. All detected impurities are evaluated in very short time. Once a bottle exceeds the specified limits, it is immediately removed. Thereby, the bottle size is almost irrelevant, and all bottle sizes from 0.2 liters to 19 liters water gallon can be evaluated.

Order options

Regularly we deliver our PETSense analyzer as an OEM product to our partner Krones AG. Krones puts the PETSense into a conditioning cabinet and sells it under the brand name "Aircontronic". Krones also delivers the control software, supports the customer during installation and offers service and maintenance.

Alternatively V&F can deliver the bare PETSense analyzer without any housing. The customer integrates the analyzer within its own equipment and uses its own control software, which communicates via the V&F EtherCAT Interface.



Typical Applications

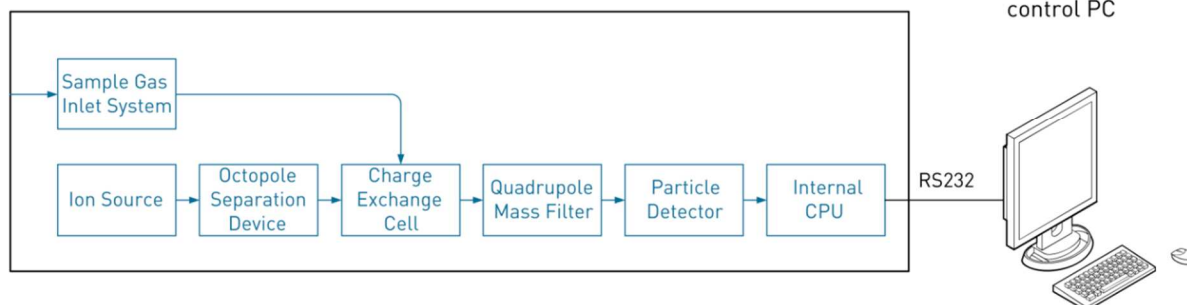
- Detection of impurities in refillable PET bottles
- Detection of impurities in PET flakes
- Leak detection in food packaging

Function principle

The PETSense is a mass spectrometer based on the patented Ion-Molecule Reaction (IMR-MS) and is designed for fast and exact identification of contaminated refillable PET bottles. By using IMR technique, the measurement becomes fast, selective and free of any interference. Unlike others, no fragmentation or overlapping spectra can damage the interpretation of the detected results.

PETSense

Ion-Molecule Reaction - Mass Spectrometer



IMR means the use of primary ions with low energy level (12 eV) to completely ionize the probe gas molecules. The signal/noise ratio is optimized by the integrated octopole separator, focusing the primary ions and filtering out any interference. The quadrupole mass filter (7-160 amu) separates the molecules for further detection at the fast pulse counter. The temperature- and pressure compensated sample gas inlet guarantees correct measurements and avoids any discrimination of the gas. Any contamination due to condensation or particulate matters is minimized.

Features, benefits

- wide dynamic range
- lowest detection limits
- robust and reliable
- highest possible flexibility
- unique fast response time
- high in sensitivity and selectivity
- temperature controlled gas inlet
- no sample preparation needed
- minimized service- and operation costs

Specification, technical data

Technical Data	IMR-MS	Technical Data	IMR-MS
Mass range	7 – 160 amu	Ambient temperature	20°C - 35°C
Resolution	< 1 amu	Humidity	max. 80 % (non-condensing)
Analysis time	>= 1 msec/amu	Gas consumption	30 – 250 ml/min
Measuring range ¹	10 ⁵	Gas inlet temperature	140°C
Response time ¹	T90 < 20 msec	Power	230V/50Hz or 115V/60Hz 800 W
Concentration drift	< ± 5% over 24 h	Dimension (WxHxD)	500 x 570 x 560 mm
Accuracy	< ± 3%	Weight	67 kg
Reproducibility	< ± 3%		

¹ depending on the measured components, system setup and the settings

