



HERACLES II > Odor Analyzer

Flash Gas Chromatography based Electronic Nose



> Fast Sensory Profiling & Detailed Aroma Characterization



HERACLES II Odor Analyzer

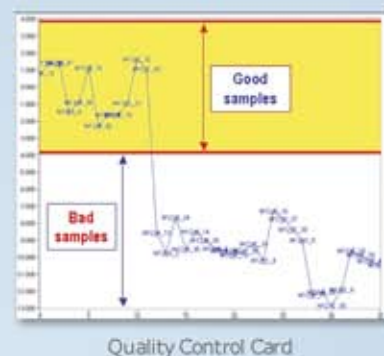
> A two in one instrument

The HERACLES II, the most powerful and flexible Electronic Nose yet with unique combination of features:

- ▶ Two different metal capillary columns in parallel
- ▶ Two Flame Ionization Detectors coupled to the columns
- ▶ Embedded cooled trap

It achieves:

- ▶ Aroma profiling and characterization correlated to sensory analysis
- ▶ Chemical compounds separation, identification and quantification following GC accepted principles



Unsurpassed performance

■ Fast analysis without compromise on resolution

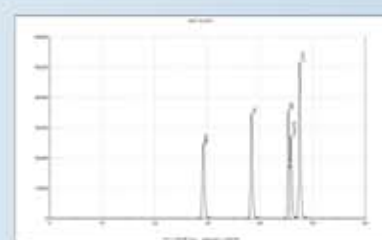
- ▶ Fast column heating rates: up to 600°C/min
- ▶ Short cycle time: typically 5 minutes

■ High Sensitivity

- ▶ Peltier-cooled adsorption trap provides enhanced sensitivity for highly volatile components (low picogram range)

■ Excellent Repeatability

- ▶ Relative Standard Deviation better than 0.3% on retention times and better than 3% on peak areas



Benzene, Toluene and Xylenes
in less than 1 min

Powerful & user-friendly software

■ Unique and easy to use functionalities

- ▶ Multivariate Statistical package for simplified data analysis
- ▶ Multiple Graphical tools for fast comparison of entire aroma profiles

■ Customizable data processing tools

- ▶ Qualitative models for products comparisons based on quality, origin, supplier, batch
- ▶ Quality control charts for product conformity checking
- ▶ Quantitative models for the prediction of flavor/odor intensity, chemical concentration or odor unit
- ▶ Shelf life models for aging profiles and follow-up of stability



Qualitative odor mapping

Arochembase: Kovats indices library

- ▶ Chemical characterization with sensory features display
- ▶ More than 230 000 entries and 44 000 compounds available, sorted by application area or chemical family
- ▶ Link with NIST Database included
- ▶ Ability to enrich the database by including your own data



Kovats indices and sensory attributes display

What can **HERACLES II Analyzer**

do for you?

Rapid product profiling and compounds identification

High throughput sample pre-screening

Fast conformity checking

Process validation



>> Petrochemical & Chemical

>> Plastic & Packaging

>> Food & Beverage

>> Pharmaceutical

>> Personal care products

>> Environment



- Conformity & Quality Control
- Batch to Batch Consistency Testing
- Off-odor Investigation
- Process Optimization / Monitoring
- Shelf-life & Stability Follow-up
- Competition Benchmarking
- Candidate Formulations Screening
- Correlation With Sensory Panel Analysis



> HERACLES II Analyzer

Specifications

■ Injection & sampling

- ▶ Liquid & headspace injection modes
- ▶ Manual or automated injection
- ▶ Tedlar bags sampling with internal pump
- ▶ Integrated solid adsorbent trap thermo-regulated by Peltier cooler (0-260°C)

■ Columns & Oven

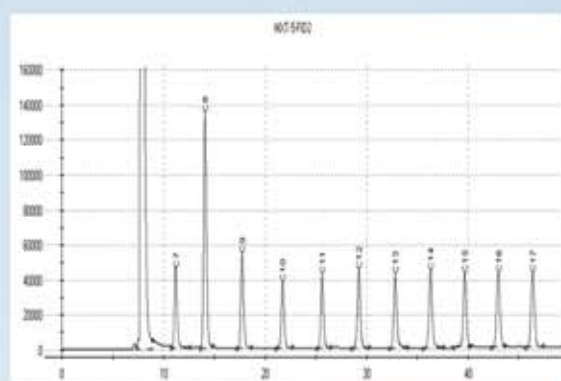
- ▶ 2 metal capillary columns (10m - 0.18mm)
- ▶ Carrier gas: Hydrogen or Helium
- ▶ Oven temperature: 35°C to 300°C
- ▶ Heating rate up to 600°C/min

■ Detectors

- ▶ 2 Flame Ionization Detectors (FID)
- ▶ FID Ignition monitored by software
- ▶ Operating temperature: up to 300°C
- ▶ FID Sensitivity: 10^{-9} to 10^{-12} A/mV
- ▶ FID dynamic linearity $> 10^8$

■ Software

- ▶ Comprehensive data processing with a software package including chromatograms, fingerprint charts (Radar plot, SQC, PCA, DFA, PLS, SIMCA)
- ▶ Available languages : English, French, Spanish, German, Japanese, Chinese, Korean



Fast separation of n-alkanes: C17 in less than 50 s

■ Performance

- ▶ Start up in less than 15 minutes
- ▶ RSD $< 0.3\%$ on retention times
- ▶ RSD $< 3\%$ on peak areas
- ▶ Detection limit < 100 pg of nC₁₂
- ▶ Usual analysis cycle time: 5 min

■ Maintenance

- ▶ Fully monitored by software (FID ignition, pressure and flow rates settings, temperature programs)
- ▶ Easy daily maintenance (septum replacement)

■ General Features

- ▶ Dimensions: 230 x 320 x 440mm (LxHxP)
- ▶ Weight: 16 kg
- ▶ Voltage: 100 / 115 / 230 VAC
- ▶ Computer connection by USB port
- ▶ Operating conditions: 0°C to 30°C
0 - 90% humidity (non condensing)
- ▶ Storage: -20°C to 60°C

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