Alpha **MOS**

SENSORY METROLOGY SOLUTIONS

color
shape
smell
taste

Increase the reliability of
your sensory testing

OUR SOLUTIONS

# for sensory testing

Alpha MOS delivers a customized answer to every customer need. You will benefit from our expertise in sensory analysis instrumentation and from our support all through your sensory testing project.

## APPLICATIONS **RANGE**

Our sensory evaluation instruments give practical tools for decision making in **quality control & product development**:

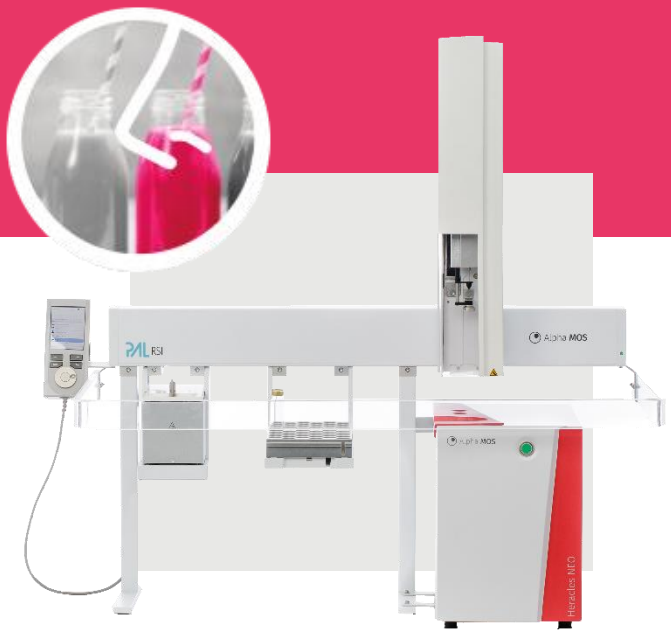
- Benchmarking of competitive products and characterization of sensory differences
- Sensory profiling to help select the optimal formulation
- Follow-up of sensory features ageing over time (stability & shelf life testing)
- Sensory quality preservation testing further to a change of supplier, ingredient or process
- Determination of the best storage conditions to preserve organoleptic quality
- Sensory conformity checking, investigation of defect origin

## BENEFITS
## OF OUR SOLUTIONS

- Make sensory evaluation more reliable and objective
- Improve production sensory quality and consistency over time
- Standardize sensory quality in production plants worldwide
- Monitor the organoleptic features of your products
- Qualify customer claims to reduce financial loss
- Significantly decrease production loss thanks to an earlier detection and better reactivity on sensory defects
- Speed up liberating tests on production batches

HERACLES

# Smell analysis




HERACLES is dedicated to the analysis of your products' aromas as well as chemical molecules composing the odor.

HERACLES uses **flash gas chromatography** and unique technical characteristics as dual column technology. This system provides **unsurpassed performance** in assessing the **chemical composition and related sensory attributes**.

## HERACLES
## Key features

**GUARANTEED CONSISTENCY OVER TIME:** a high level of columns protection (headspace injection & embedded trap limiting impurities, no oxygen in the columns with permanent carrier gas circulation) contributes to long-term stability. Fully automated operations and accurate temperature control produce a high level of measurements reproducibility and stability. Finally, machine calibration avoids potential drift.

**HIGH SPEED & THROUGHPUT OF ANALYSIS:** with Flash GC capabilities coupled with an autosampler, HERACLES can analyze up to 200 samples a day with a display of volatile profile less than 2 minutes.

**UNSURPASSED SENSITIVITY:** fast gas chromatography with embedded pre-concentration trap allows to reach very low detection thresholds on volatile compounds.

**SUITABLE FOR EVERY USER:**

- Expert mode for parameters set-up and further analytical investigations
- 380 ready-to-use analytical methods included

## Several capabilities with **HERACLES**

- ✓ Check with HERACLES NEO 100
- ✓ Qualify with HERACLES NEO 200
- ✓ Expertise with HERACLES NEO 300
- ✓ Focus on essentials with HERACLES QA

## HERACLES NEO
# Portfolio

AlphaSoft software & options (p.12/13):

| | NEO 100 | NEO 200 | NEO 300 |
|---|---|---|---|
| Chromatographic Data System | ● | ● | ● |
| AroChemBase | ● | Option | ● |
| Sensory ID | | ● | ● |
| Statistical data processing | | ◐ * | ● ** |
| MMI Pro | | Option | Option |

* Level A: sample mapping (PCA)
** Level B: sample mapping (PCA) & further investigations (SIMCA, SQC, DFA & PLS)

***CHECK*** **HERACLES NEO 100:** more than a gas chromatograph, use HERACLES NEO 100 to check rapidly your compounds of interest, and identify them easily due to AroChemBase linked to dual GC technology.

***QUALIFY*** **HERACLES NEO 200:** first step to ensure the production quality (batch-to-batch consistency) and prevent any outlier by confirming the presence or absence of your sample markers. AroChemBase can even help you identifying them!

Sensory ID is a specific algorithm developed for a easy to read quality information with a PASS/FAIL display. The first level of statistical data processing provides an easy comparison of your sample. MMI Pro is an intuitive interface that displays only the information you need for your daily use.

Heracles NEO 200 allows to reach a high throughput because of a gas autosampler.

***EXPERTISE*** **HERACLES NEO 300:** a powerful system offering in-depth investigation on chemical composition: origin of off-odors and sensory defects, competition benchmarking etc. The full data exploration package allows creating odor maps, predictive, quantitative and qualificative models to easily compare your products and identify the molecules with AroChemBase.

HERACLES NEO 300 is also equipped with a liquid/gas autosampler, which makes it the perfect solution for all your applications from R&D to QC!

## HERACLES QA
# Focus on essentials

HERACLES QA is our dedicated solution for production environment and more specifically to assess food and beverage quality.

## Dedicated solution for your quality assurance
## **Only 3 development steps**

- ✓ Collaboration with our application center
  Identification and selection of compounds responsible for off-taste
- ✓ HERACLES QA training
  Recognition of your selected markers in your products
- ✓ Customized solution
  Ready to be implemented in your production plants

**DON'T MISS OUT OFF-ODORS ANYMORE:** with this tool, focus on specific markers responsible for bad odors & tastes because of several reasons as process default, raw material contaminations, ingredient instability etc.

- Monitor every production line with the same reliable system and avoid any risk to miss out off-odors
- Easy to read quality information with a PASS/FAIL display
- Quality assurance tool

**CUSTOMIZED SOLUTION FOR YOUR APPLICATION:** every industrial area has its own expectations and challenges, we specifically customized our system to meet your requirements.

With our development tool, analyzing your specific product with integrated artificial intelligence, we are able to define a customized model for selected markers, differentiating off-taste vs on-taste products for the following market segments:

- Aroma & flavors
- Oils
- Soft drinks, coffee & tea
- Dairy
- Seasonings & sauces
- Alcohols & spirits
- Pet food
- Packaging

AROCHEMBASE

# Molecules characterization

A unique database of molecules with numerous search capabilities to help identify the compounds detected when assessing odors.

Based on the Kovats index, it delivers a list of possible molecules with related sensory attributes, sorted by relevance index.

## AroChemBase **Features**

- ✓ 99,000+ molecules with retention indices on several gas chromatography columns
- ✓ 2,000+ compounds with related sensory attributes
- ✓ 1,800+ molecules with human smell detection thresholds
- ✓ Based on 10,000+ publication references
- ✓ Customizable and flexible library

### USERS PROFILE

- HERACLES NEO users: generated data are automatically integrated into AroChemBase software
- Most GC and GC-MS users: AroChemBase stand-alone software, compatible with any system equipped with a FID, PID or TCD detector
- Without instrument: anyone wishing to consult the chemical and sensory library

### SEVERAL POSSIBILITIES

- Display all compounds potentially present
- Check the presence of a compound of interest
- Search all molecules from a chemical family
- Refine the search by selecting sensory attributes
- Focus the search on a specific product in the literature

### VARIOUS APPLICATIONS

- Aroma profiling
- Chemical characterization
- Sensory benchmarking as competitive products study, formulation, retro-engineering etc.
- Off-odor identification useful to determine production defaults and investigate consumer claims

ASTREE

# Taste analysis

ASTREE **electronic tongue** is an instrument dedicated to the **analysis of your products' taste**.

Based on **ChemFET sensor technology and conductivity measurements**, this device can detect organic and inorganic compounds responsible for taste in liquids in order to assess the overall taste profile, just as the human tongue does.

## Powerful analytical **Capabilities**

- ✓ Taste maps for easy and fast comparison on the overall taste fingerprint: benchmarking, recipe optimization, taste stability follow-up, impact of a change in ingredient or process on the taste
- ✓ Quantitative analysis of taste masking efficiency
- ✓ Ranking on taste attributes intensity for saltiness, umami and sourness
- ✓ Quantitative analysis in correlation with a sensory panel

ASTREE

## Key features

**OBJECTIVE AND RELIABLE MEASUREMENT:** the automated instrumental measurement under controlled conditions guarantees unbiased and reproducible results. The method is particularly suitable for the research and development of new formulations or finished products.

**FAST ANALYSIS:** the carrousel autosampler allows to fully automate the analysis sequence of a samples set, with a sample evaluated every 3 minutes.

**POWERFUL QUANTITATIVE ABILITIES:** with the electronic tongue sensors, it is possible to simultaneously rank similar samples based on the intensity of salty, acid and umami attributes.

**SAFE METHOD:** using the electronic tongue prevents from exposing panelists to unknown or potentially dangerous compounds.

IRIS

# Color & shape analysis

Based on **high resolution camera** imaging under controlled lighting conditions in a closed cabinet, IRIS visual analyzer achieves a **detailed measurement** of products aspect (colors and shapes).

The instrument can **evaluate the whole product as perceived by the consumer** or focus on selected portions.

## Powerful analytical **Capabilities**

- ✓ Visual conformity control to check that it meets acceptable quality standards
- ✓ Visual defect detection
- ✓ Size distribution control in mixes or batches
- ✓ Color stability testing over time, assessment of aspect change over time
- ✓ Evaluation of process impact on the visual aspect Benchmarking of competitive products based on visual aspect

IRIS

## Key features

**OBJECTIVE AND RELIABLE VISUAL ASSESSMENT:** unaffected by product consistency or texture, IRIS achieves reproducible color and shape measurements under controlled conditions and assures product traceability through data storage.

**IN-DEPTH ANALYSIS:** the instrument measures both color and shape parameters in one acquisition on the whole product. It does not deliver a mean value but determines the proportion of each visible color, color distribution and variations across the surface as well as information such as circularity, area or surface ratio between minimum and maximum size.

**EASY AND FAST METHOD:** this non-destructive analysis requires no sample preparation and is suitable for complex and non-uniform areas. Thanks to a large measurement surface, sample size is seldom an issue, which also allows to assess several samples in one analysis.

ALPHASOFT

# Operation & data processing

**3 instruments, 1 software**: AlphaSoft is the unique software platform that allows to operate all Alpha MOS sensory analysis instruments and to process measured data.

It combines HERACLES, ASTREE and IRIS results to have an overall point of view of your products organoleptic properties.

This powerful software covers your needs **from the sample to the results**:

## Data processing **Statistics**

LEVEL A

Data exploration prior to building another model: Principal Components Analysis (PCA) is an easy qualitative comparison of samples.

LEVEL B

Enter another dimension of information!

Quality control chart (SQC & SIMCA), Qualitative models (DFA), Quantitative model (PLS).

**PILOT**

Control your instrument features & analytical method development.

**ANALYZE**

Data acquisition for your daily analysis at all steps of production: selection of raw materials, production process, finished products quality assurance…

**EXPLORE**

Find the right information in the amount of generated data.

With AlphaSoft, explore sample analysis through statistical data processing and present your results in easy-to-read graphs, control charts or tables.

**MAINTAIN**

AlphaSoft anticipates your needs and avoids losing time on lab activity.

## ALPHASOFT
## Key features

**AUTOMATIZE DATA TREATMENT**: no specific skill needed, allowing time and money savings.

**ALL YOUR DATA ARE UNDER ONLY ONE SOFTWARE**: integrate external data to correlate instrumental results with sensory panel evaluation.

**MULTI LEVEL USERS**: improve your team organization by giving different access levels to operators and managers, for a better traceability of results.

## HERACLES
## MORE POSSIBILITIES

### SENSORY ID

PASS/FAIL results display for quality product assurance

Save the time you were spending on understanding chromatograms results, Sensory ID is our model designed for industry users who need to make fast and good decisions with a PASS/FAIL display.

Simplify chromatographic data exploration step: the complete fingerprint is analyzed and no integration peak is necessary.

Changing the way of seeing the chromatograms results also means that we offer a new alignment method; no system calibration is needed with this model.

### MMI PRO

From samples to analysis report, at a glance!

MMI PRO is an intuitive interface that displays only the information you need for your daily work. Find all your tools in one window view to create and launch easier and faster analysis.

It is specifically dedicated to production environment by reducing the number of steps for routine operators and avoid potential errors.

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Specialized in electronic sensing systems, Alpha MOS is positioned as the world leader in the design and development of instruments dedicated to smell, taste and visual aspect (color and shape) analysis. To answer the needs of major industries, Alpha MOS offers reliable and fast solutions that can control the sensory quality of their products and secure their manufacturing process.

As the first company to market electronic nose technology, Alpha MOS has always made strong investments in R&D to develop innovative products to meet these needs.

Headquartered in Toulouse, France, Alpha MOS has subsidiaries in the USA & China and a network of more than 30 distributors worldwide.

Alpha **MOS**

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