GERSTEL

MAKING LABS WORK

Perfect Olfactory Detection

Olfactory Detection Port ODP

- Stress-free olfactory work
- Accurate and reproducible data
- Reliable operation

Follow the nose: The success of your product depends on it!

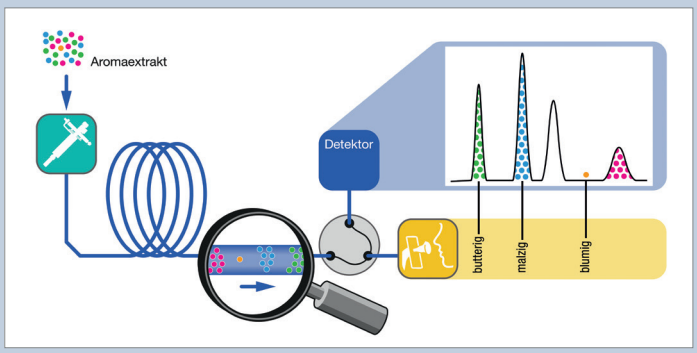
The olfactory sense is among the most important senses for humans and animals alike and has been of critical importance to our survival. Odors are immediately registered followed by a subconscious or instinctive assessment of the situation, in which we find ourselves, or of the product we hold in our hand.

Odors influence our daily lives in subtle unnoticed ways. Pleasant odors stimulate our well-being and our appetite and they can influence purchasing decisions. Unpleasant odors warn us against eating spoiled food. And even distant memories from years and years ago can be reawakened through long forgotten odors.

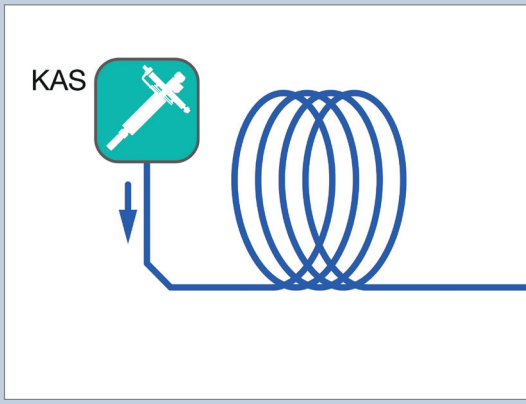
Olfactory Detection Port: Systematic odor analysis

The Olfactory Detection Port (ODP 4) offers a system solution for the determination of aromas, fragrances, and off odors using gas chromatography in combination with olfactory detection (GC-O). Olfactory analysis is performed on food, beverages, perfumes, body care and consumer products, packaging and much more.

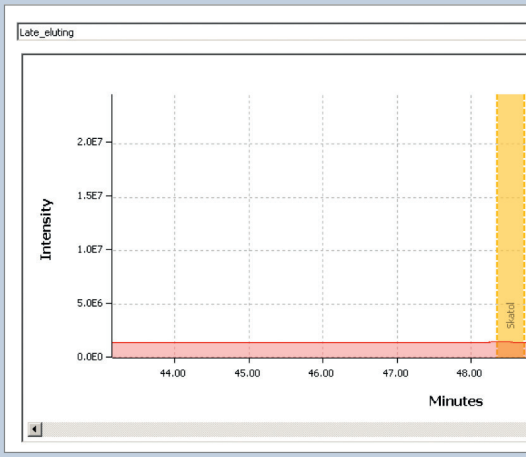
The ODP 4 was developed to allow users to work in a concentrated yet relaxed manner, meeting individual ergonomic requirements. The powerful Olfactory Data Interpreter (ODI) data processing software is capable of handling the large amounts of data gathered.



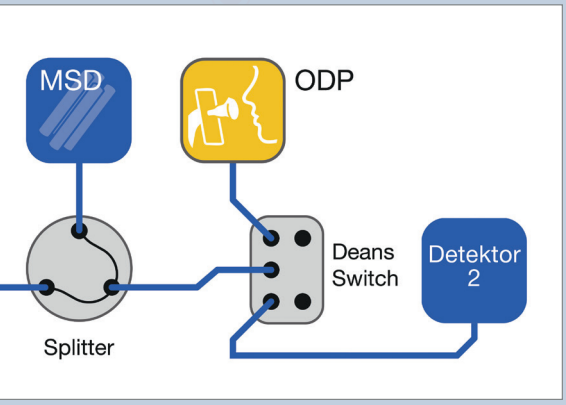
Schematic drawing of GC-O analysis

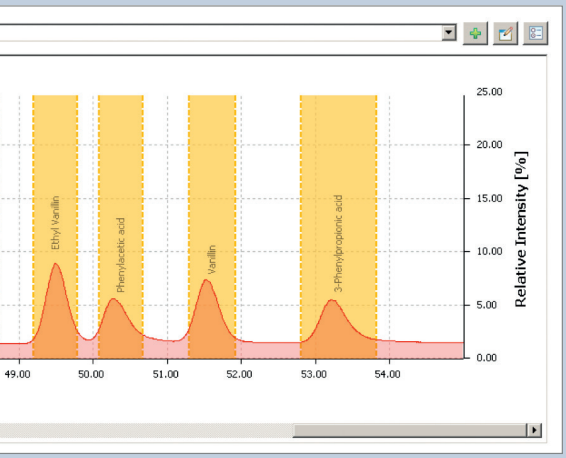


GC-O system with column switching and multiple detectors including an ODP.



Presentation and annotation of odor active compounds in the chromatogram





Pure performance: The latest generation GERSTEL Olfactory Detection Port - ODP 4

Relaxed olfactory detection work

- Optimized, stable and individually adaptable ergonomics
- Enables fully concentrated work with eyes closed
- Humidification protects mucus membranes as needed

Accurate and reproducible data

- High data security, unambiguous identification – Sniff & Trap
- Sharp GC-O peaks even for higher boiling polar compounds

Rugged, reliable and qualified system operation

- 30 years of GERSTEL experience in multi-dimensional system configurations
- GERSTEL workshops with experienced instructors teach practical sniffing

Olfactory Detection Port (ODP)

Relaxed no-compromise olfactory work

The GERSTEL ODP meets the highest ergonomic and analytical requirements. As soon as compounds, even high boiling and polar compounds, elute from the GC column, the ODP accurately presents them to the nose for precise and reproducible olfactory determination. The integrated voice recognition software records spoken user comments during the olfactory analysis.

Sensory impressions for odor active compounds listed in a chromatogram are efficiently and unambiguously recorded and documented. The ODP is compatible with most standard GC instruments.

1 One-turn fixation knob

Ensures convenient positioning with a single turn of the hand for optimized ergonomics and relaxed, concentrated analysis work. The 3D swivel lock provides excellent stability. The ODP enables simplest possible adjustment and meets individual user requirements even when operated by multiple users.

2 Heated, inert transfer line

Without cold spots, enabling accurate and reproducible identification of odor active compounds across wide boiling point and polarity ranges, including SVOCs. The transfer line temperature can be set to track the GC oven program.

3 Exchangeable glass cone

Exchanged by simply loosening a thumbscrew. Each analyst can use his or her own glass cone for improved hygiene.

4 Exchangeable positioning ring

Exchanged by turning and releasing it from the bayonet joint. The PTFE coated adapter is used for olfactory work with or without the glass cone. Each analyst can use his or her own positioning ring and markers for improved hygiene. An adapter is used for trapping compounds on an adsorbent tube (Sniff & Trap).

Operation without glass cone

The ODP 4 enables sensory work with or without glass cone, there is no exposure to heated surfaces. Individually settable markers and pins allow perfect nasal positioning even with eyes closed for perfect concentration. The make-up gas flow can be reduced to avoid dilution of the column effluent for maximum sensitivity.

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5 Sniff & Trap using adsorbent tubes

This function enables isolation and concentration of odor active compounds of interest within a defined retention time window without the need for complex column switching systems. Thermal desorption of the trapped compounds can subsequently be performed in the TDU 2 for further analysis. Sniff & Trap allows uncomplicated handling of two types of analytical procedures:

A Collection of separated volatile compounds over a defined retention time window and re-analysis of the trapped compounds on a GC column with orthogonal polarity (offline heartcutting) for separation of co-eluting compounds.

B Concentration of compounds not found in the chromatogram, but detected in the ODP, over multiple GC runs. The compounds are subsequently determined in a separate GC run.

6 Humidification

To prevent mucus membrane irritation, the adjustable make-up gas can be humidified.

7 Voice recognition

Spoken sensory descriptors are recorded and documented using state-of-the-art voice recognition. Noise cancelling features help eliminate disruptive background noise in the laboratory. The analyst can fully concentrate on the olfactory perception avoiding potential errors.

8 Olfactory Intensity Device (OID)

Simultaneously with the olfactory assessment and description, the intensity of the impression is registered by the simply choosing one of four intensity levels on the ODI.

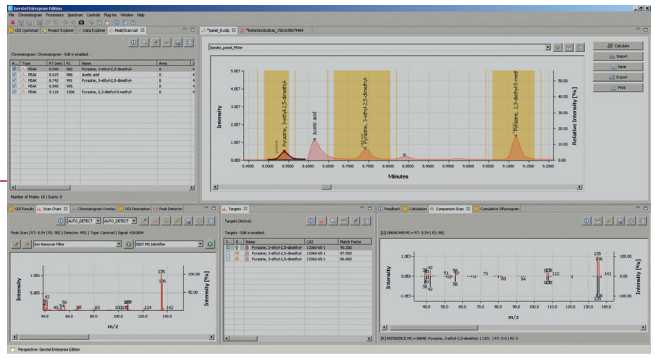
Olfactory Data Interpreter (ODI)

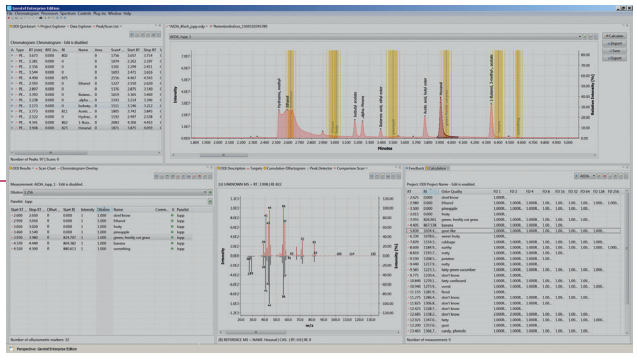
Efficient GC-O/MS data interpretation

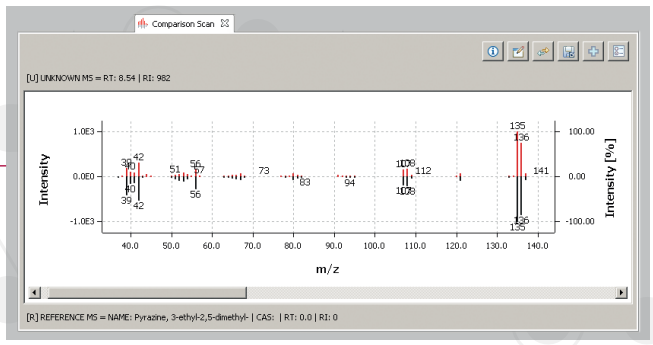
The Olfactory Data Interpreter (ODI) Software processes chromatography data, for example from GC/MS, GC/FID or GC/PFPD, in combination with sensory impressions and intensities obtained using the ODP 4.

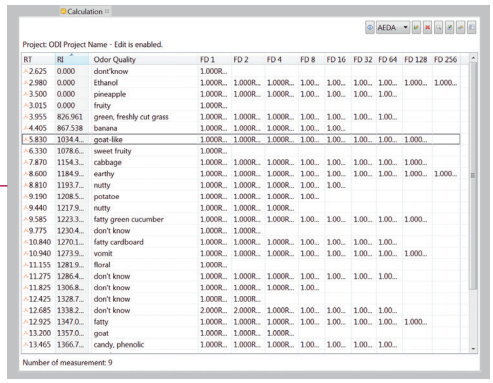
The software automatically recognizes and imports GC- and GC-MS data formats from different instrument brands. The ODI displays an overlay of the chromatogram, olfactogram and sensory impressions for easy evaluation and analysis.

In addition, the analyst is presented with a detailed overview of required parameters for processing GC-O data including: Retention times, retention indices (RI), GC-O intensities as well as olfactory descriptors. Based on an n-alkane standard mixture chromatogram, every peak is automatically assigned its retention index.









1 Identification based on GC-O/MS data

The ODI integrates multiple functions for extraction and interpretation of mass spectra. The MS library search function handles library data formats from a variety of producers. The GERSTEL Applications Laboratory recommends the NIST-AMDIS Software, integrated with the ODI-Software for fast and accurate compound identification as well as spectral deconvolution of co-eluting compounds.

2 Aroma-Extrakt-Verdünnungsanalyse (AEDA)

The ODI enables simplified processing of Aroma Extract Dilution Analysis (AEDA) data. The maximum dilution factor, referred to as the Final Dilution factor (FD) at which a substance is still perceptible at the ODP, is stored together with the sensory impression, Retention Index and identification result. The AEDA report can be exported by copy and paste or imported into MS® Excel for further processing.

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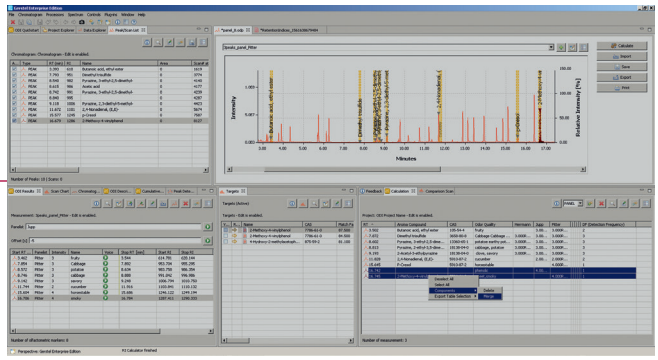

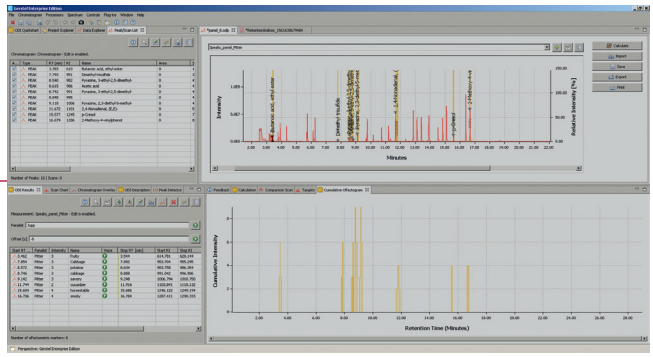

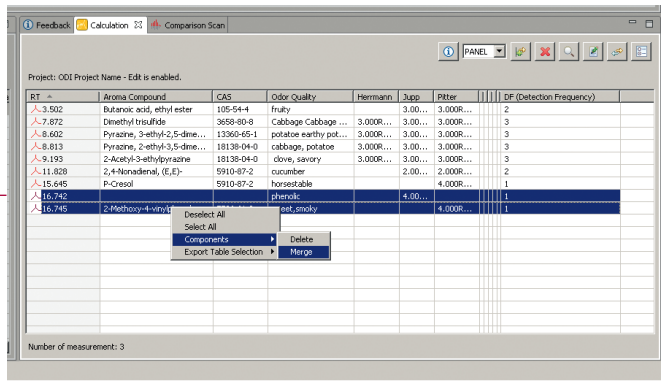

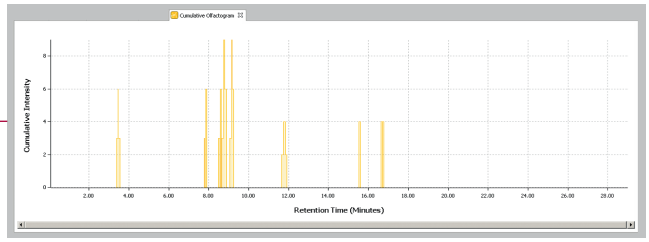

3 Panel analysis data and detection frequency

If a sample is analyzed by multiple persons, i.e. a sensory panel investigation, existing panel data can be processed using the ODI in order to determine the number of panelists who found each individual olfactory impression. The ODI performs this data analysis by mouse-click and delivers the detection frequency of each compound.

4 Cumulative Olfactogram

The function "Cumulative Olfactogram" quickly and reliably delivers information as to which compounds contribute to the olfactory impression even when present in minute concentrations. This enables the analyst to identify the main odor active compounds in a sample. The sample is analyzed by GC-O in different dilutions to arrive at the result. The ODI adds the determined intensities for the individual dilutions and calculates the cumulative value.

Looking for more?

For more than 50 years, GERSTEL has continually set new bench marks in delivering compounds to GC- or GC/MS analysis systems without loss or discrimination, generating accurate analysis results. GERSTEL sample preparation und sample introduction solutions for GC/MS and LC/MS are adapted to your needs and can be delivered as complete systems with GERSTEL as single source provider. As needed, this can include the application.

To ensure your success, GERSTEL provides comprehensive technical and application support by a team of highly experienced and motivated colleagues. Our experienced sales and service representatives are available to support you and provide qualified answers to any question technical or otherwise that you may have.

Service from day one

Installation and familiarization by fully trained technical staff

Following installation, your system is tested and the service engineer provides the user with a system and software familiarization to ensure that he or she can operate the system and reliably generate results. An Installation Qualification (IQ) can subsequently optionally be performed for compliance with regulations.

Training courses

Comprehensive training courses given by experienced application chemists are available as options. Courses include classroom presentations as well as hands-on instrument operation and maintenance.

Workshops

In addition to the regular training course program, our application specialists developed a range of workshops that teach practical skills in co-operation with acknowledged experts. In addition to knowledge, skills that are useful for practical laboratory work are acquired by hands-on work. Existing skills can be refreshed and refined in co-operation with experts.

The two-and-a-half day workshop "Analyzing with all senses" provides a structured introduction to olfactory detection. The hands-on part is built around training in the perception and description of fragrances as well as use of the GERSTEL Olfactory Detection Port (ODP) in combination with GC separation. In addition, reliable identification of unknown odor active compounds using the Olfactory Data Interpreter (ODI) software is taught.

Certified Quality

GERSTEL systems and solutions are developed, produced and distributed under a quality system certified to meet the demanding ISO 9001:2015 quality standard. Before an instrument or Sample Prep Solution is brought into operation it is tested for technical and application functionality to ensure that it reliably operates to specification.

Service support

If you have questions or would like to sign up for a workshop, please contact us by telephone or E-mail:
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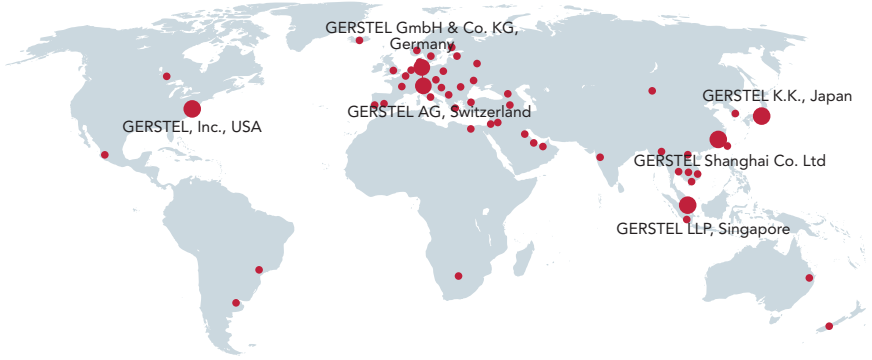

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