



A SCENT OF FUTURE



UNMATCHED SENSITIVITY

NO CROSS-CONTAMINATION

HIGHEST PRODUCTIVITY, RELIABILITY, AND EASE OF USE

INCREASED ANALYTICAL PERFORMANCE

Master DHS/P&T
DYNAMIC HEAD SPACE/PURGE&TRAP SAMPLER



Master **DHS/P&T**
DYNAMIC HEAD SPACE/PURGE & TRAP SAMPLER

A Dynamic Approach to High Sensitivity Headspace Analysis

The DANI Master DHS/P&T provides you with the most versatile, state-of-the-art system for headspace analysis. It combines the **high sensitivity** of the Dynamic Headspace technique with the **productivity, ease of use, and flexibility** of a completely **automated solution**.

As in static headspace analysis, liquid or solid samples are placed in sealed vials and thermostatted in a temperature-controlled oven. Shaking of the vials is also available to speed up the extraction step and increase its efficiency.

The use of a precise flow of inert gas through an original dual-needle enables the volatiles to be swept from the sample headspace and focused in a sorbent packed trap.

Analytes are then rapidly thermally desorbed and introduced into the gas chromatographic column.

The highest recovery of the volatiles and the optimal injection result therefore in an unmatched sensitivity.

In addition, the Master DHS/P&T can process liquid samples in purging mode thus further lowering the detection limits and featuring the capabilities of a Purge and Trap system.

The accurate and precise control of the entire sampling process ensures superior analysis performance thus fulfilling the requirements of both routine analyses and research applications over a wide range of sample types such as water and soils, food and beverages, polymers, and pharmaceuticals.

The Master DHS/P&T can be also combined with the Master AS Automatic Sampler to increase the sample capacity and optimize the vial processing for the maximum system productivity. Moreover, Master AS further increases the analytical precision through an extremely flexible handling of standard solutions.

A smart intuitive touchscreen user interface or an exclusive control software easily manage all the operating parameters and analytical conditions.



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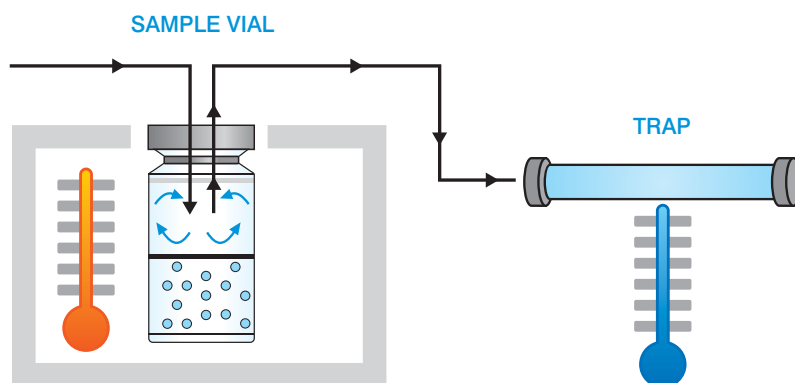
Unmatched Sensitivity

Superior sensitivity is obtained through the constant sweeping of the thermostatted sample, promoting the enrichment of the volatile compounds on the sorbent trap.

Using selected sorbent materials and temperature settings, the efficient concentration of trace level analytes is achievable over a wide range of volatility.

The Master DHS/P&T offers up to a 100-fold increase in sensitivity over conventional headspace techniques and assures detection limits beyond the capability of SPME.

Sensitivity can be further increased by using selective and specific detection systems, such as Electron Capture Detector (ECD), Photoionisation Detector (PID), and Mass Spectrometers (MS).



No Cross-contamination

The DHS sampling technique is based on the injection of gas vapors only, therefore ensuring a totally clean procedure, a long analytical column life-time, and highly reliable analytical results.

Every sample is placed in a disposable 20-mL headspace vial thus eliminating any risk of carry-over effect. Foaming samples can be processed in the Dynamic Headspace mode to prevent the system from contamination.

No additional workload of cleaning glassware or time-consuming line purging are requested.

Nevertheless, the entire sample flow path, including the dual-needle, undergoes an automated cleaning cycle during the baking phase.

In addition, the inert material of the entire sample flow path prevents carry-over effects, corrosion, and sample loss caused by adsorption and reactivity.

The Master DHS/P&T unit can be easily hyphenated to the Master GC and the MasterTOF Time of Flight GC/MS as well as the most common commercially available GC and GC/MS systems.



Highest Productivity, Reliability, and Ease of Use

Unlike conventional Purge and Trap systems, the Master DHS/P&T maximizes productivity through the overlapped sample thermostating capability, the shorter baking phase, and the use of disposable vials.

In combination with the Master AS automatic sampler, the Master DHS/P&T allows sample overlapping with constant incubation time increasing laboratory productivity and sample throughput: the system automatically controls that the next sample is thermostatted during the GC analysis of the previous one.



Moreover, the system delivers the complete automation of the standard addition to enhance analytical precision: the addition of up to 6 standard solutions directly into the vial can be programmed by the user.

Operating parameters are set and controlled through a touchscreen display for a quick and easy set up. A remote communication between Master DHS/P&T and Master GC enables high synchronization for safe and fast working cycles increasing laboratory productivity and profitability.

The minimal sample handling and the complete automation of all process steps ensure highly reliable and reproducible results even with unexperienced operators.



Increased Analytical Performance

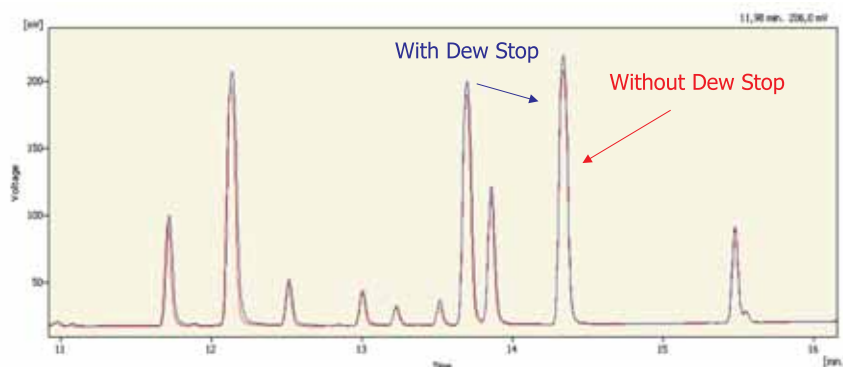
When introduced into the GC in large amount, water may seriously affect separation and detection, compromising the overall quality of the analytical results.

Master DHS/P&T incorporates an innovative, ingenious Dew Stop device which efficiently removes water regardless of the analytes, maintaining volatile compounds recovery unaffected. For extra convenience, the Master DHS/P&T built-in water elimination device is programmable.

Unlike other techniques, there is no need for solvents, avoiding the possible masking of peaks of interest by the solvent peak and the introduction of impurities into the GC system. In addition, the technique prevents hazardous effects on the environment, protects the operators' health, and eliminates considerable solvent disposal and costs.

A sophisticated control of all parameters and the highly precise electronic regulation of the purging gas flow-rate feature an unmatched repeatability and accuracy of the analytical results.

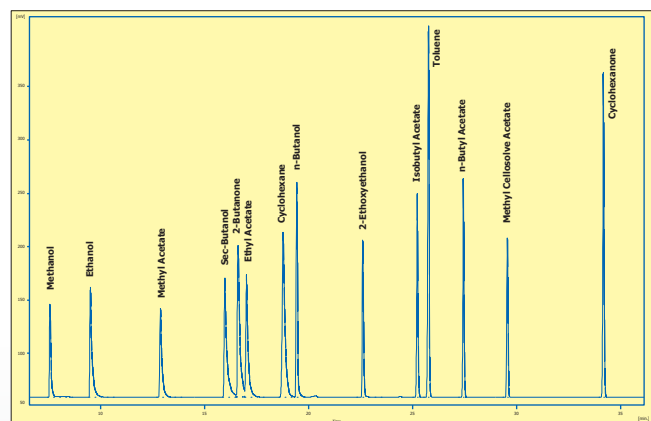
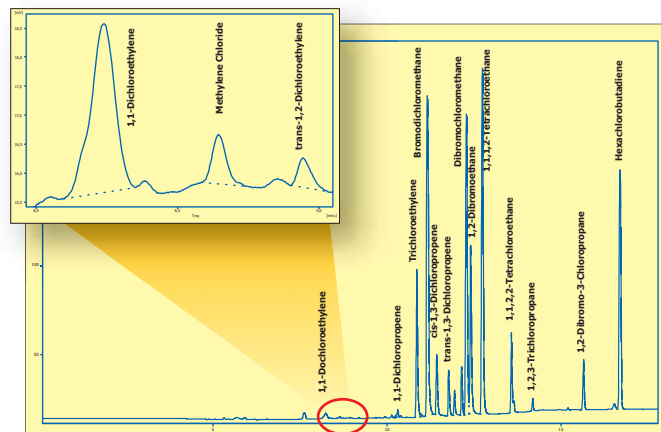
"Dew Stop" removes water maintaining the recovery of Chlorinated Hydrocarbons unaffected.



Unprecedented Sensitivity over a Wide Range of Applications

Determination of Chlorinated VOCs in Water

The determination of low concentrations of Chlorinated Volatile Organic Compounds (VOCs) is of utmost importance when assessing the quality of drinking and raw source water. The concentration efficiency of the Master DHS/P&T can be combined to the high sensitivity and selectivity of the ECD, achieving minimum detectable levels well below currently recommended limits (EPA Method 502.2).



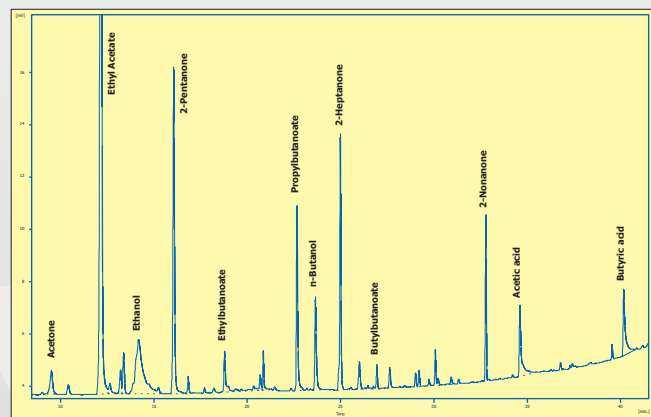
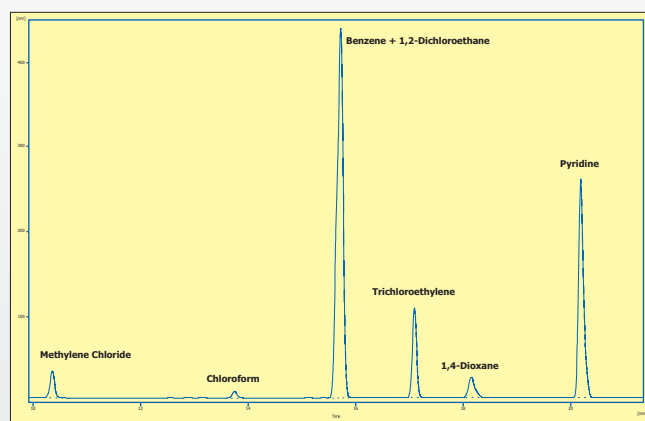
Food Packaging Material Analyses

As it is well-known, packaging materials may represent a source of contamination of the food they are intended to protect. Two approaches are usually addressed: the control of the packaging production process and the control of the migration of chemicals into foodstuffs.

The Master DHS/P&T delivers outstanding system performance in the determination of residual solvents used or produced in the manufacturing process. A sensitivity higher than the one described in the EN 13628-2: 2002 norm, based on static headspace sampling, is achieved.

Pharmaceutical Field: Tracing Residual Solvents in Pharmaceuticals

In the latest revision of the USP 467 chapter, stricter regulatory requirements were implemented for the quantitative analysis of residual solvents in pharmaceuticals. The Master DHS/P&T hyphenated to the Master GC provides high sensitivity analysis, exceeding the requirements of the USP method.



Unveiling Trace Level Compounds in Flavor and Fragrance Matrices

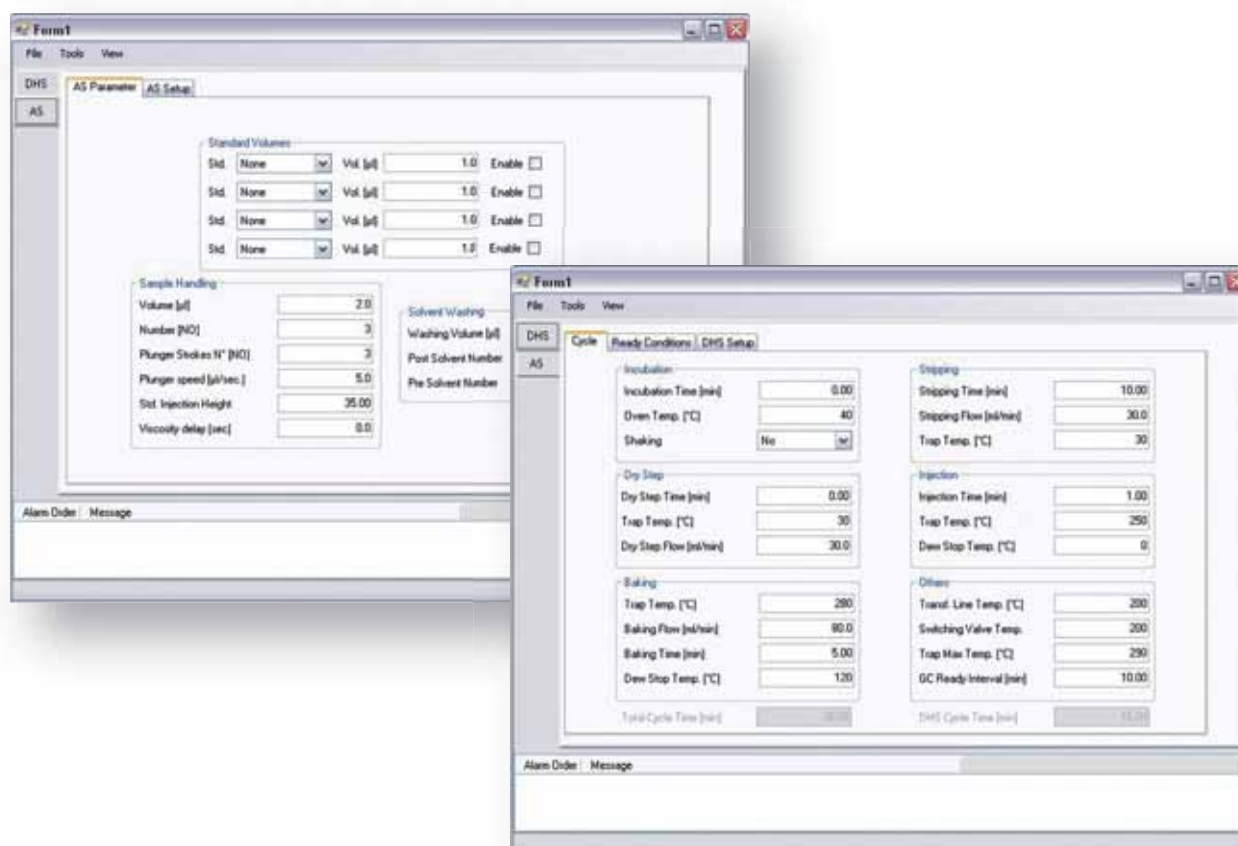
The multi-skilled Master DHS/P&T is an advantageous sampling tool in the investigation of trace compounds in F&F matrices.

This high concentration capacity sampling technique permits to extend the analyte volatility range, yielding a more representative flavor profile. Moreover, its inert sample pathway prevents eventual breakdown and adsorption of odor impact compounds.

Complete Master DHS/P&T Control

The Master DHS/P&T can be fully controlled by installing the driver of the CLARITY Chromatography Station or by using the standalone software, DHS Manager.

Both system control modes offer a straightforward method and sequence set up enabling automated analysis. Methods and sequences can be easily edited, stored, and uploaded to the instrument.



KEY TECHNICAL POINTS

MASTER DHS/P&T

The unit is equipped with a built-in 18 position carousel
 Standard 20-ml vial with crimped or screwed cap
 Original "Dual-needle" design (for headspace or liquid purging)
 Electronic flow control of purging gas
 High temperature oven, valve and transfer line
 Vial shaking capability
 Packed focusing trap with backflush desorption
 Optional electrical cooling of the trap
 Programmable "Dew Stop" device for humidity removal
 Inert sample flow path
 Compatibility with most of the commercially available GC and GC/MS systems
 Several trap sorbent materials are available

MASTER AS

65-position vial tray
 Standard 5-500 μ L microsyringe for the addition of standard solutions
 Up to 6 vials for standard solutions (surrogates, spiking solutions, reagents)
 2 solvent wash and 2 waste vials
 Permits sample overlapping with constant incubation time



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AUTHORIZED DEALER

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