



## Agilent Thermal Separation Probe

# A fast and easy alternative MS probe for analyzing solid, liquid, and slurry samples

In the field or in the lab, preparing your sample can cost you valuable time. The Agilent Thermal Separation Probe (TSP) puts quick sample analysis at your fingertips, with a simple and clean process:

- Little or no sample preparation is required
- Eliminates the risk of contamination problems associated with traditional direct sample probes
- Control sample delivery by temperature and fine-tuned split ratios

Used for complex samples in food testing, forensic, and environmental applications, Agilent TSP works as part of Agilent GC/MS systems and is compatible with the Agilent 5975T LTM GC/MSD – the industry's first transportable GC/MS system – and the Agilent 7890A GC with the 5975C Series MSD, 7000 Series Triple Quadrupole MS, 220 and 240 Ion Trap MS, and the 7200 Q-TOF MS.



The Measure of Confidence



**Agilent Technologies**

# In the field or in the lab, the Agilent Thermal Separation Probe gives you **greater flexibility** in your sample analysis

## Little or no sample prep required

With the Agilent Thermal Separation Probe, you can achieve results faster, because little or no sample preparation materials are required. Simply place a few grains of solid sample powder – or pipette 1  $\mu\text{L}$  for split/splitless inlet – or up to 50  $\mu\text{L}$  (for Multimode Inlet) of liquid, into disposable micro-vial. Then insert the probe and vial into a heated split/splitless inlet or temperature programmable Multimode Inlet (MMI). As the sample vaporizes, non-volatile or low-volatile high boiling point compounds remain in the disposable micro-vial, allowing the system to remain clean.

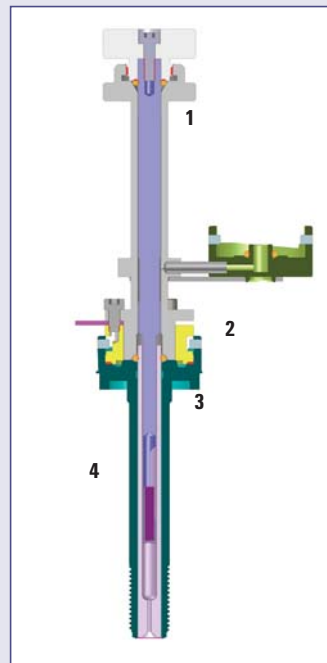
## More flexibility, less risk

TSP uses the GC inlet to efficiently introduce the sample into the system. Because of this direct interface, the operator can take advantage of the flexibility of the inlets to effectively dilute neat samples in the split mode, or analyze trace compounds in the splitless mode. Contamination problems associated with traditional solid probes are avoided easily.

## Dual control of sample delivery

As with a traditional solid probe, the TSP uses temperature for the primary control of sample delivery to the GC/MS. But the TSP has the advantages of also using inlet split ratios to fine-tune the process. Adjustment of split flow minimizes column and detection overload and detector contamination. As an added advantage, high helium flow allows the TSP samples to be changed without air introduction to the system while the inlet is open.

Independent temperature programming for the inlet and the GC column supports the analysis of multi-component mixtures. Traditional direct sample probes cannot equal the versatility and performance of the TSP for both simple and complex samples.



1. Probe
2. TSP Adapter
3. Inlet liner with O-ring
4. TSP sample vial

**How the Thermal Separation Probe works to increase your uptime**

The cutaway diagram shows the TSP inserted into a Split/Splitless or Multimode Inlet.

- ▶ Only the compounds that can be vaporized by the inlet temperature are taken by carrier gas into the column and detector for measurement.
- ▶ Other non-vaporized compounds with high boiling points – such as “dirty sample matrix” compounds that can contaminate the GC liner and column – remain inside the micro-vial and can be discarded after each injection.

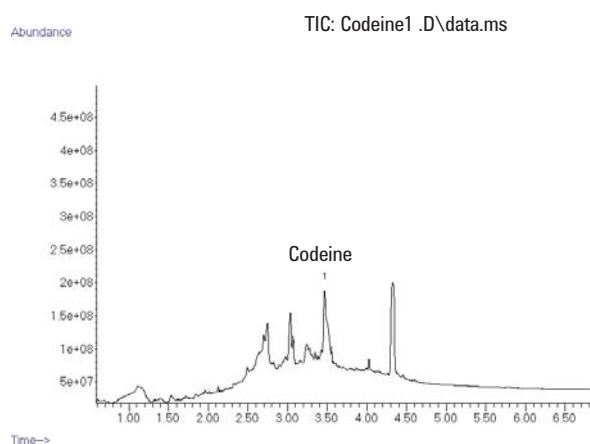
As a result, the build-up of active sites in the inlet liner and cross-contamination between samples is significantly reduced.

# Achieve **faster sample analysis** in a variety of applications

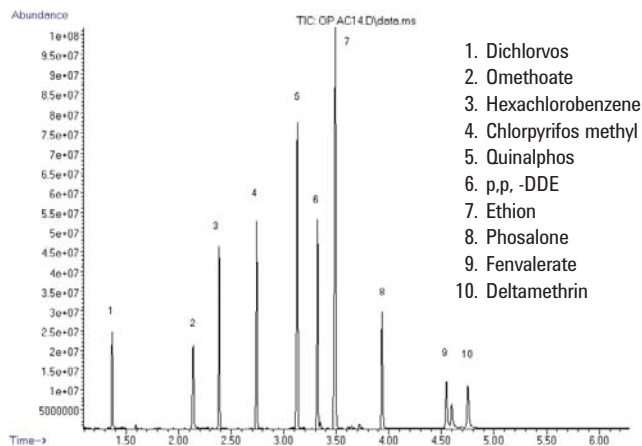


Agilent Thermal Separation Probe is ideal for faster GC/MS analysis of a variety of 'dirty' liquid, solid, and slurry samples in food testing, forensic, and environmental applications.

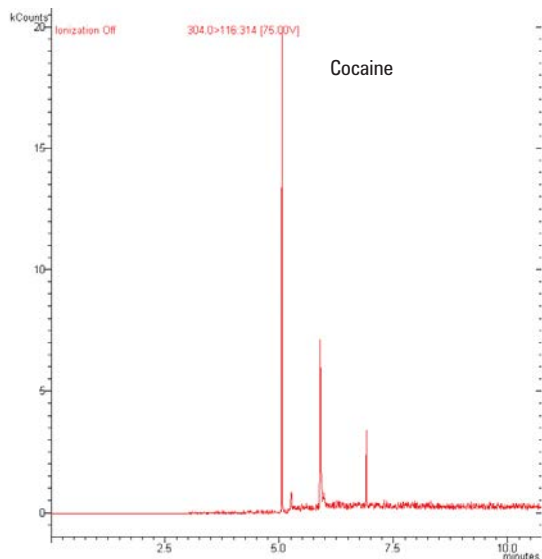
## Screening of drugs and poisons by directly measuring blood sample without sample preparation using the Agilent 5975C GC/MSD or Agilent 5975T GC/MSD



## Fast screening for pesticides on fruits and vegetables for on-site measurement using Agilent 5975T GC/MSD



## Analysis of cocaine in hair using Agilent 220 Ion Trap GC/MS



### Adaptable by sample type

There are two primary GC/MS uses for the Agilent Thermal Separation Probe:

- **Complex samples** (such as soil, food products, and biological matrices). After the sample has been thermally desorbed into a standard analytical column, the components can be separated and quickly identified by MS detection.
- **Neat samples** (such as street drugs and purified compounds from synthesis reactions). To avoid column and detector overload, neat samples are typically desorbed at a high split flow. The sample is transferred to the MS via a short 1 m deactivated capillary column. A full-scan mass spectrum can be collected within a few seconds since no GC separation time is required.

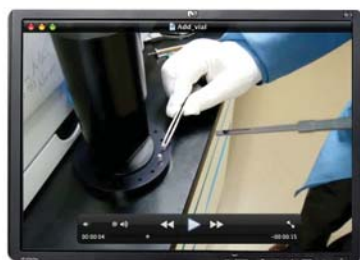
To learn how the Agilent Thermal Separation Probe can provide quick sample analysis, visit [www.agilent.com/chem/TSP](http://www.agilent.com/chem/TSP)

# Everything you need in one complete kit

For easy setup and use, the Agilent Thermal Separation Probe includes the items shown here. You'll also receive a CD with an operational manual to assist in setup and use.



The Agilent Thermal Separation Probe was developed by Professor Aviv Amirav and Dr. Shai Dagan, Tel Aviv University. For more information on Professor Amirav's research, please visit <http://www.tau.ac.il/chemistry/amirav/dsi.shtml>



To see how the TSP works, visit [www.agilent.com/chem/TSP](http://www.agilent.com/chem/TSP) to view a product demo.

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