PRODUCT NOTE

Gas Chromatography/ Mass Spectrometry

Key Features:

- Field sample preparation for portable GC/MS
- Portable thermal desorption for sub-ppm detection limits
- Internal standard for quantitative analysis in the field

Sample Prep Station (SPS-3)

Rapid Field Sample Analysis

The Torion® T-9 portable GC/MS is designed for rapid analysis of complex samples in the field, providing actionable information. That information can be used for situations like:

- Public safety – for evacuating a potentially hazardous area
- Environmental studies – a problem is identified yet more samples need to be taken
- Early warning of problems – alert to identification of contaminants

Often, sample preparation and introduction techniques used in the laboratory are not practical in the field. Therefore, we have developed a suite of self-contained, portable, sample preparation and introduction accessories, the Sample Prep Station (SPS-3™) line, designed for field use with the Torion T-9 portable GC/MS.

PerkinElmer®
For the Better

Easy, Flexible Operation

The SPS-3 can operate in the field from battery power and an internal tank of pressurized helium gas, or it can operate from laboratory supplied gas (helium or nitrogen) and line power.

The SPS-3 supports air sampling using both conventional traps and the Torion's needle trap, in both cases allowing the use of an internal standard for quantitative work.

The needle trap (NT) is typically used to sample volumes of air up to 500 mL, at 50 mL per minute, and concentrations in the 10-50 ppb range. Conventional sample desorption (SD) traps are used for air volumes up to 2500 mL, and concentrations in the 1-5 ppb range. An internal standard (IS) can be added for quantitative work for both traps.

Novel Air Sample Collection and Injection

Custodion-NT devices can be used to achieve 10-50 ppb detection limits for many air-borne compounds. To achieve lower detection limits, samples are collected using conventional traps (1/4-inch stainless steel tubes with adsorbents) first, and then transferred to the Custodion-NT using the SPS-3 SD module. This SPS-3 desorption process occurs under gas flow and at temperatures up to 300 °C. Once the sample is concentrated on the Custodion-NT device it can be injected into the GC/MS for analysis.

The SPS-3 IS module contains a Calion™ vial from which the calibration vapor is generated. This allows you to easily add the IS to a Custodion-NT without the need to carry external sample standards. After an analytical sample has been collected on a Custodion-NT, either directly or by thermal desorption from a conventional trap, the Custodion-NT containing the sample is introduced into the IS module where it is exposed to a known volume of IS vapor. The needle trap captures the IS, and then the needle trap containing the sample and internal standard is introduced into the GC/MS.

Accomplish What You Need with Speed

You can expect to get 15-20 desorptions from conventional traps on a single battery charge, and over 100 desorptions from a single tank of compressed helium gas, depending on the duration and temperature of the desorption and the gas flow rate. If extended battery life is a potential requirement, multiple battery packs are available.

A Comprehensive Portable Solution for Virtually Any Application

With the SPS-3, field sample preparation is rapid, reliable and enables easy sample collection. It supports the SD module, the NT and one IS module. The SPS-3, along with the Torion T-9 GC/MS, allow air sampling and semi-quantitative analysis of samples to be performed in the field, giving actionable information, without the need for separate compressed gas supplies, AC power sources or additional liquid or gaseous internal standards.

SPS-3 Specifications

Dimensions	7.8 in. h x 12.5 in. w x 10.8 in. d 19.8 cm h x 31.8 cm w x 27.4 cm d
Weight	10 lbs. 4.5 kg
Internal Standard	Toluene-d8 and Bromopentafluorobenzene. No liquids; headspace of vapor generated from a solid phase. 100 standard samples/vial.
Gas Source	Internal pressurized tank or external tank via connection at rear of instrument; high purity (99.5%) or ultra-high (99.995%) helium; external high purity nitrogen.
Electrical Rating	
External Power	90-250 V, 50-60 Hz AC power
Battery	Rechargeable Li-ion (15 V DC)
Number of SD Runs	15-20 complete runs on single battery charge
Charging Time	2.5 hours
Methods	20 methods stored on instrument
Software	CHROMION® software interface to read back data including time, date, flow rate, temperature, duration and an indication of internal standard used.

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