



## Specifications

### 5800 Sorbent Pen Desorption Unit

The Entech 5800 SPDU is a unique thermal desorption system that uses multiple columns in the GC oven to either concentrate the sample, or perform a single or dual stage split injection to optimize GC capillary column loading. The 5800 SPDU completely eliminates transfer lines, secondary packed traps, and rotary valves found in other thermal desorption systems, and allows backflushing of the first column to optimize system cleanliness.

#### Thermal desorption / Sample Introduction Options

- VASE - Vacuum Assisted Sorbent Extraction as a quantitative replacement for SPME
- FEVE - Full Evaporative Vacuum Extraction for comprehensive analysis of SVOCs in water and other matrices
- Direct thermal extraction of liquids and solids using disposable or reusable glass 6.3mm OD glass tubes and micro vials
- Thermal extraction of filters for SVOC analysis of collected particulate matter
- Analysis of new hybrid WCOT Capillary / Pack Sorbent Pens for enhanced recovery of SVOCs in air to include gas-phase and particulate adsorbed organics
- Analysis of Diffusive Sorbent Pens for trace analysis of BTEX and other compounds in air

#### Compatibility

- Compatible with Agilent®, Thermo Scientific®, and Shimadzu® GC/GCMS systems

#### Temperature Programming

- Two temperature desorption setpoints
- Heating rates up to 450 °C/min
- Initial temperature 50-350 °C
- First desorb temperature 50-350 °C
- Second desorb temperature 50-350 °C
- Hold time maximum 60 minutes

#### Sample Injection Modes

- Trace Splitless
- VOC/SVOC Split
- Dual split Mode (before/after Column 1)
- Very Low Split Option (as low as 2:1)

#### Desorption Temperature

- Maximum 350 °C

#### Control

- SPRINT software running concurrently with the GCMS software
- Controlled through 5800-M or SPR-C5800 rail mounted modules

#### Automation

- Automated using the Entech SPR - Sample Preparation Rail
- SPR trays hold up to 30 Sorbent Pens. Up to 8 trays can be supported (240 samples)

#### Environmental Conditions

- 10 to 35 °C
- Relative Humidity 20-85%

#### Dimensions of Pneumatics Module (W × H × D)

- 71 × 277 × 76mm

#### Weight of Pneumatics Module

- 0.4 kg

#### Power Consumption

- Max. 350 W
- Avg. 90 W
- Stdby 5-15W

#### Thermal Desorption Media

##### Sorbent Pens:

- Headspace Sorbent Pens (3.5" L x 1/4" Dia)
- Diffusive Sorbent Pens (3.5"L x 1/4" D)
- Active Sorbent Pens ( 4.35"L x 1/4" D)
- Glass Sorbent Pens (3.5" x 1/4" D)
- Glass tube (48.3mm x 6.3mm x 4-5mm ID)

## TD Pneumatic Controller

- Controls operational modes of pneumatics
- Controls Pen Retention at Desorber
- Low split operation standard, with multiple set split flow elements
- Front panel LEDs for operational awareness
- Controls optional 3801 additional bakeout station
- Controls optional SPR-FM Flow Module for gas phase spiking, dry purge control, and Large Volume Static Headspace support
- Dimensions (W x H x D): 147 x 75 x 298mm
- Weight: 1.8 kg

## Supported Techniques

### Headspace using VASE/FEVE

#### Principle

Thermal desorption of analytes on Entech Headspace Sorbent Pens using either VASE - Vacuum Assisted Sorbent Extraction, or FEVE - Full Evaporative Vacuum Extraction.

#### Features

- Samples are collected under vacuum, to maximize and speed up recovery during headspace extraction
- Sample is delivered through an inert liner directly onto the GC pre-column
- Split or Splitless Desorption
- Dry Purge Operation Supported
- Pre-Concentration of compounds on first stage column while venting lower molecular weight compounds / solvents, or split injection of low to high molecular weight compounds
- Adsorbent Bakeout occurs automatically during desorption process, bypassing the GC column

#### Applications

- Headspace analysis of compounds boiling from -50 °C to +450 °C using VASE - Vacuum Assisted Sorbent Extraction, including volatiles in water, flavors, fragrances, volatiles to semi-volatiles in materials. A more quantitative and sensitive alternative to SPME
- Headspace analysis of compounds boiling from 150C to 600C using FEVE - Full Evaporative Vacuum Extraction, including 8270 analysis of SVOCs in water, and SVOCs in a variety of other matrices without the use of solvents

#### Standard Liquid Support

- Isolation sleeves support the addition of Calibration or Internal Standards onto the front of the Sorbent bed prior to analysis
- Analyte derivatization during extraction

#### Required Supplies

Entech Sorbent Pens for:

- Headspace

#### Commonly Used Adsorbents

- Tenax TA™
- PDMS + Tenax TA

- Tenax TA + Carboxen 1000
- Tenax TA + Carboxen X

#### Automation

- Entech SPR40 Robotic Rail Autosampler
- 8 trays max at 30 samples per tray
- Fully automated FEVE extraction, Sorbent Pen isolation, and GCMS analysis

## Direct Thermal Extraction

#### Principle

Glass sample tubes are used to desorb chemicals volatilizing out of liquid and solid samples. Solids are maintained by Silonite coated screen at the bottom of the tube, while liquids are held in microvials inside of the glass tubes.

#### Features

- Liquid or solid samples are loaded into the tubes
- Tubes are typically used once
- Two modes:
  - Concentration of compounds onto first column for trace analysis
  - Split injection to analyze VOCs through SVOCs

#### Applications

Rapid detection of compounds emitting from materials at low to high temperatures and any given temperature within the desorbers operating range, without having to perform solvent extractions. Potential screening of contaminants in Polymers, Cannabis, and other materials. Analysis of low to high boiling liquids.

#### Required Supplies

- Glass Sorbent Pens, with disposable glass inserts with Silonite coated screens at the desorption end
- Micro vials also needed when running liquid samples

#### Automation

- Entech SPR Robotic Rail Autosampler
- 8 trays max at 30 samples per tray

## Thermal Desorption of Air Monitoring Tubes

#### Principle

Analysis of thermal desorption tubes used to sample air either actively or diffusively, using ASP - Active Sorbent Pens, or DSP - Diffusive Sorbent Pens.

#### Features

- Uses advanced active sampling sorbent cartridge design that effectively recovers heavy SVOCs in air, by capturing air particles on an initial capillary stage for superior recovery of heavy organics known to be adsorbed on the particle phase
- Custom glass liners to support both Active and Diffusive sampling cartridges (Sorbent Pens)
- Split / Splitless desorption
- Dry purge option
- Pressurized leak check option
- Adsorbent bakeout occurs automatically during desorption process, bypassing the GC column

## **Applications**

Thermal Desorption of analytes collected on single or multi-staged adsorbents during air monitoring, Large Volume Static Headspace (LVSH), Desorption of other volatiles and semi-volatiles collected from indoor air, chamber outgassing studies, adsorption from Tedlar bag samples, etc.

## **Standard Liquid Support**

- Isolation sleeves support the addition of Calibration or Internal Standards onto the front of the Sorbent bed prior to analysis
- Supports gas phase spiking of volatiles, or syringe spiking of SVOCs prior to analysis

## **Required Supplies**

*Entech Sorbent Pens for:*

- ASP Sorbent Pens for active sampling of air or headspace
- DSP Sorbent Pens for diffusive sampling of indoor, outdoor, or workplace air

## **Commonly Used Adsorbents**

- Tenax TA™
- PDMS + Tenax TA
- Tenax TA + Carboxen 1000
- Tenax TA + Carbopack X
- Carboxen® 1000
- Carbopack X
- Tenax TA, Carbopack B, Carboxen 1000

## **Automation**

- Entech SPR Robotic Rail Autosampler
- 8 trays max at 30 samples per tray



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5800 SPDU Specs -200212-2.0

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