

## Technical Notes: Sorbent Pen Default Method Conditions for GC and 5800

<b>DESCRIPTION:</b> SORBENT PEN DEFAULT METHOD CONDITIONS FOR THE GC AND 5800		<b>DOC.#:</b> 5800-800- V02- DEFAULTME THODCONDITI ONS-C.DOCX	<b>REV.:</b> 02	<b>APPROVAL:</b>	<b>ORIGINATOR:</b> TIM RAUB
<b>FILE:</b>		<b>ISSUE DATE:</b>		<b>DEPARTMENT:</b> SERVICE	
<b>REV.:</b> 00	<b>DATE:</b> 10JAN2017	<b>INITIALS:</b> TTR	<b>DESCRIPTION:</b> Document created.		
<b>REV.:</b> 01	<b>DATE:</b> 10FEB2017	<b>INITIALS:</b> TTR	<b>DESCRIPTION:</b> UPDATED CONDITIONS		
<b>REV.:</b> 02	<b>DATE:</b> 21JJUL2017	<b>INITIALS:</b> TTR	<b>DESCRIPTION:</b> UPDATED CONDITIONS.		

### Background:

The Purpose of the conditions below is to provide a set of conditions to be used as a starting point during installation, or if method development goes in the wrong direction, or if method conditions are lost due to the failure to back up the instrument's computer. These conditions should work reasonably well and were generated during Method Development at Entech.

### 5800 Default VOCs to SVOCs Method Conditions:

The screenshot shows the 'VOCs to SVOCs Method' configuration window in the Entech 5800 SPDU software. The window title is 'Entech 5800 - 1.1.0.6'. The interface includes a sidebar with navigation options: FILE, VOCs TO SVOCs (selected), VOCs IN WATER, EPA 325, and TRACE ANALYSIS. The main area displays the following parameters:

- GC:** Run Time: 29.0 min
- Preheat:** Duration: 120 sec, Temperature: 260°C, Start GC: No, Wait to Start: 0.0 min
- Desorption:** Standby: 70°C, Duration: 20.0 min, Temperature: 260°C
- Bake Out:** Duration: 5.0 min, Temperature: 260°C
- Post Bake:** Duration: 4.0 min, Temperature: 70°C

The description text reads: "Use this method for VASE analysis of the overall full volatility range of volatile to semi-volatile organic compounds in all matrices. Split Mode: This method requires a split injection utilizing split 2. Column 1 Requirements: Silonite Coated tubing, 0.02-0.04" ID, 0.2-2m. Column 2 Requirements: 0.25-0.5 micron film thickness, 30-60m, 0.18-0.32mm ID." A status bar at the top indicates 'SYSTEM STATUS' with 'Status Message', 'Desorbent 0 (70)', 'Conditioner', 'GC GC Not Ready', and 'Elapsed 00:00:00'. A 'File Saved. 9:00 AM' notification is visible in the top right corner.

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Use this method for VASE analysis of the overall full volatility range of volatile to semi-volatile organic compounds in any matrix, liquid or solid. Examples include compositional analysis of food and beverages, fragrances, aromas, odors, and contaminants. Light to heavy compounds may be analyzed with great sensitivity and virtually no carryover. A mass spectrometer is the recommended detector.

#### **Default GC Method:**

**Pre-column:** Entech Silonite® Coated tubing, 0.04" ID x 24" length

**Primary Column:** HP-5MS 30 m L X 0.25 mm ID X 0.5 µm film thickness

**Split Mode:** Split, 30:1 ratio

**Column Flow:** 1.5 ml/min

#### **Oven Program:**

Rate (° C/min)	Temp (° C)	Hold Time (min)
	35	5
10	150	0
20	300	5

Total Run Time: 29 minutes

**AUX (MSD transfer line) temperature:** 230° C

#### **Default VOCs in Water Method Conditions:**

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**Method Description:** Use this method to analyze VOCs collected from water using VASE. A mass spectrometer is the recommended detector.

### Default GC Method:

**Pre-column:** Entech Silonite® Coated tubing, 0.04" ID x 24" length

**Primary Column:** HP-5MS 30 m L x 0.25 mm ID X 0.5 µm film thickness

**Split Mode:** Split, 30:1 ratio

**Column Flow:** 1.5 mL/min

### Oven Program:

Rate (° C/min)	Temp (° C)	Hold Time (min)
	35	5
10	150	0
25	250	4.5
Total Run Time: 25 minutes		

**AUX (MSD transfer line) temperature:** 200°C

### 5800 Default EPA Method 325 Method Conditions:

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**Method Description:** Use this method for analysis of Diffusive Sorbent Pens sampled over 2 weeks to collect BTEX and other organic compounds of similar volatility as per US EPA Method 325A/B. This method requires a pressure sensor installation and is used to perform a leak check before every run. After all volatile compounds have been desorbed are on Column 2, a back flush starts preventing unwanted heavy compounds from reaching Column 2 so that shorter run times can be achieved. The detector can be MS or FID.

### Default GC Method:

**Pre-column:** DB1 5 m L X 0.530 mm ID X 0.5 µm film thickness

**Primary Column:** DB1 60 m X 0.32 mm X 1 µm film thickness

**Splitless/Split Mode:** Split at 0.01 min; 25:1 ratio

**Column Flow:** 2 mL/min

### Oven Program:

Rate (° C/min)	Temp (° C)	Hold Time (min)
	35	3
35	170	0
5	190	0
35	210	4.5

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Total Run Time: 16 minutes

AUX (MSD transfer line) temperature: 180°C

### Default 5800 Trace Analysis Method Conditions:

The screenshot shows the Entech 5800 SPDU software interface. The title bar reads 'Entech 5800 - 1.1.0.6'. The main window title is 'VOCs to SVOCs Method'. The interface includes a sidebar with menu items: FILE, VOCs TO SVOCs, VOCs IN WATER, EPA 325, and TRACE ANALYSIS (which is selected). The main area displays method parameters for 'File: Default.5800.TRACE'. A 'SYSTEM STATUS' bar at the top shows 'Desorber 0 (70)', 'Conditioner', 'GC GC Not Ready', and 'Elapsed 00:00:00'. The parameters are organized into several sections:

- GC:** Run Time: 29.0 min
- Preheat:** Duration: 120 sec, Temperature: 260°C, Start GC: No, Wait to Start: 0.0 min
- Desorption:** Standby: 70°C, Duration: 5.0 min, Temperature: 260°C
- Bake Out:** Duration: 20.0 min, Temperature: 260°C
- Post Bake:** Duration: 4.0 min, Temperature: 70°C
- Description:** Use this method for VASE analysis for compounds with a boiling point above 100°C when maximum sensitivity is required. Split Mode: This method is splitless for C8-C30 range, but split for compounds under C8 at Split 2. Column 1 Requirements: 0.25 micron film thickness, 5m, 0.25-0.53mm ID. Column 2 Requirements: 0.5 micron film thickness, 30-60m, 0.25mm ID.

A 'Method Errors' section is visible at the bottom of the main area.

**Method Description:** Use this method for VASE analysis for compounds with a boiling point above 100°C when maximum sensitivity is required. A mass spectrometer is the recommended detector. Examples include ultra-trace level analysis, geosmin, 2-MIB, TCA, THC.

### Default GC Method:

**Pre-column:** DB1 5 m x 0.530 mm, 0.5 µm film thickness

**Primary Column:** 30 m x 0.25 mm HP5MS, 0.5 µm film thickness

**Split Mode:** Split, 10:1 ratio

**Column Flow:** 1.5mL/min

### Oven Program:

Rate (° C/min)	Temp (° C)	Hold Time (min)
25	35	5
	160	0

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10

300

5

Total Run Time: 29 minutes

AUX (MSD transfer line) temperature: 230°C