

Selective Sampler SS-1010E

Flow Switching System Utilizing Gas Pressure Difference

(Patent Pending)

With this device installed, any set of peaks in the Evolved Gas Analysis curve obtained by Multi-Shot Pyrolyzer or Thermogravimetry (TG) can be heart-cut, and solvent peaks and high-boiling species can also be removed. The technique also eliminates flow path contaminations with polar species, and tars on the metal surfaces which are the problems of conventional rotary valve systems, resulting in reduced analysis time and easy maintenance of separation column and detector.

Features

1. Heart-Cutting Desired Peaks

Any set of peaks in an evolved gas curve can be heart-cut. The components can then be introduced into a capillary column for a specific analysis, allowing significant reduction of time required for analysis.

2. Flow Switching System

New flow switching system: an inlet adaptor with a flow path switching system utilizing pressure difference of carrier gas has been employed. The flow path is made of deactivated Ultra ALLOY® capillary tube giving no dead volume or cold spots.

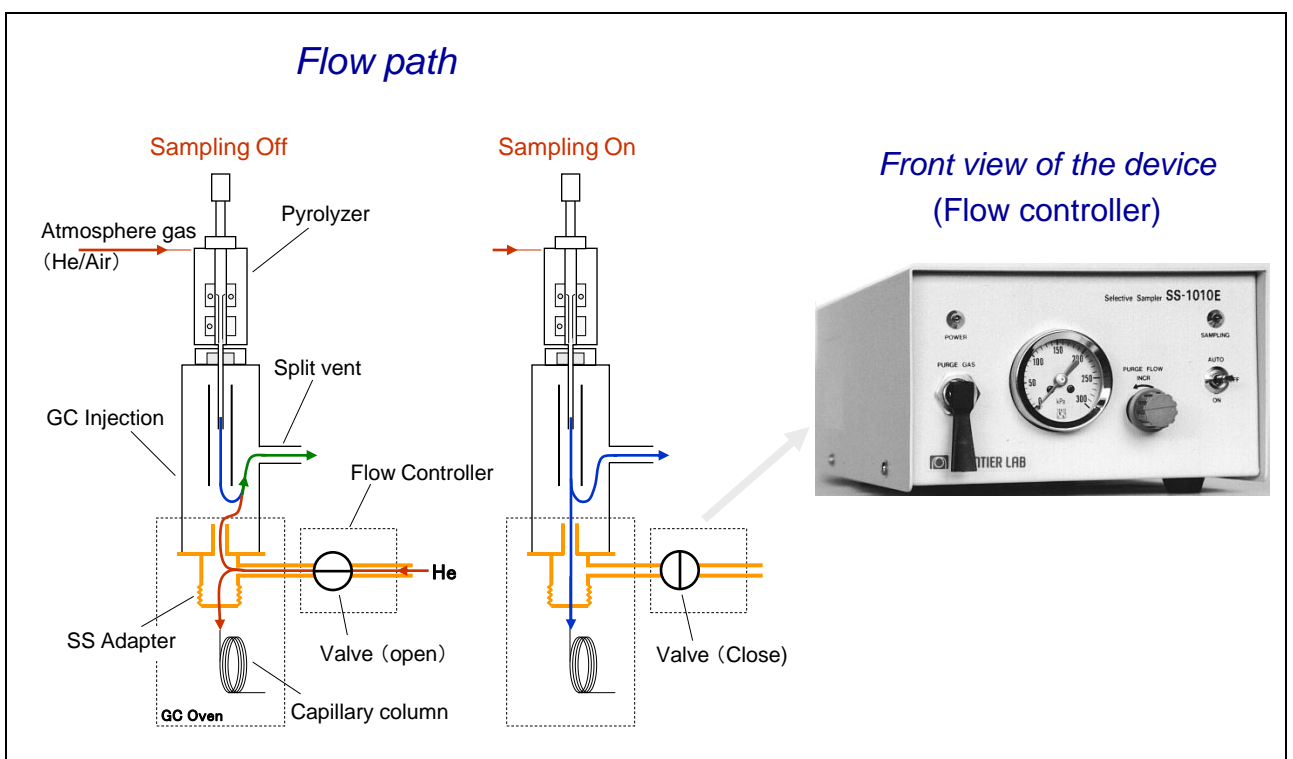
Automatic adjustment of purge gas pressure: the system automatically adjusts the purge gas pressure against changes of the separation column length and its inner diameter.

Manual or automatic flow switching: the timing of flow path switching can be programmed from Multi-Shot Pyrolyzer temperature controller. Also flow path switching can be manually performed.

Various atmosphere gases (He, Air, etc.) can be used: Using air as a sample atmosphere gas gives thermal information under oxidative environment.

3. Simple Construction with Easy Installation

The installation is simple and easy. Just attach a selective sampler adaptor to the split / splitless inlet.



Application 1: Heart-cutting any peak in evolved gas thermogram

(This is especially useful when this device and Multi-Shot pyrolyzer or TG are used.)

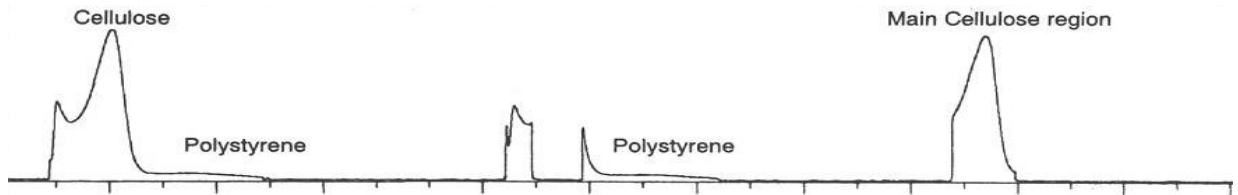
Experiment:

A piece of copy paper (3 mm x 3 mm) was heated from 200°C to 500°C at 20°C/min in He carrier gas in the Multi-Shot Pyrolyzer. The evolved gas was directly detected by FID.

(A) Before heart-cutting

(B) Regions before and after the major components are heart-cut.

(C) Major components are heart-cut

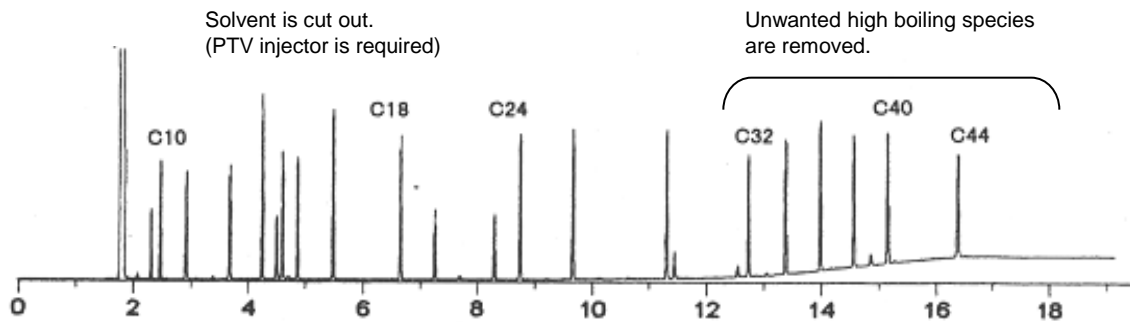


As shown in this example, any thermal region can be heart-cut. Components that are heart-cut can be analyzed directly by a mass spectrometer or atomic emission detector (AED), or by a capillary GC after cryo-trapping at the head of a separation column. If air is used as a carrier gas, pyrolytic changes under oxidative atmosphere can be analyzed.

Application 2: With Py-GC or with GC or GC/MS without pyrolyzer

Analytical conditions:

Ultra ALLOY-1, 30m (0.25 mm id), 0.1 µm, Temp: 70°C→400°C (20°C/min)



Detector contaminations are minimized by eliminating unwanted solvents such as TMS agent, etc. This is extremely useful in ECD and GC/MS experiments. Removing high boiling species results in significant reduction of analysis time and column baking time, leading to extended life of separation columns.

Specifications

- ◆ Flow path switching system by automatic pressure control.
- ◆ Maximum use temperature: 420°C (inlet adaptor temperature)
- ◆ Power requirement: 100/115 VAC, 1A
- ◆ Gas chromatographs that can be used with this device: Agilent 7890, 6890, Shimadzu 2010, 17A

- Ultra ALLOY and Double-Shot Pyrolyzer are the trademarks of Frontier Laboratories Ltd.
- For product improvement, appearance and specifications are subject to change without notice.

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