

### Canary-Two™ for Precise Analyses

The Canary-Two™ (figure 1) incorporates a micro preconcentrator (collector), micro-GC column, and a SAW microbalance detector (figure 2). A chemically selective preconcentrator ensures that potentially interfering chemicals are ignored and the micro-GC separates target chemicals for selectivity. This minimizes the number of chemicals introduced to the SAW detector at any given time, improving system performance. Canary-Two™ can detect chemical warfare agents, degradation products, and precursors as well as various VOCs.

The device may be used as a point and analyze sensor system. The display will show which of the target chemicals the system was trained for are present. Experienced users may save or display the chromatographic data on a computer laptop. It can detect nerve agents even in the presence of high concentrations of interfering chemicals such as fuel vapors.

The Canary-Two™ can also be packaged in a smaller configuration without batteries and displays for applications such as facility monitors, unmanned aerial vehicles (UAV) or unmanned ground vehicles (UGV). The gas module can also be provided for OEM applications.



Figure 1. Canary-Two™ Package

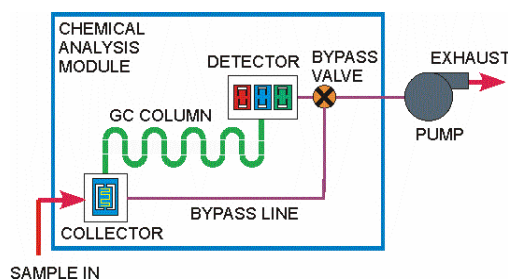


Figure 2. Canary-Two™ Analysis Chain

### Representative Data

Figure 3 shows the collection, separation, and detection of five different chemicals simultaneously, with Sarin, DMMP, soman, tabun, and cyclosarin all distinguished from one another in the same analysis. This cycle can be repeated every two minutes. The one meter micro-GC column was coated with polydimethylsiloxane (PDMS). The flow rate through the GC is approximately 8mL/min and the GC temperature ramps from 60 °C to 90 °C at 30 °C/min.

Figure 4 shows the detection of methyl salicylate, which is frequently used as a simulant for mustard gas. These data were collected using a different GC column which was ramped from 50 °C to 80 °C at 30 °C/min.

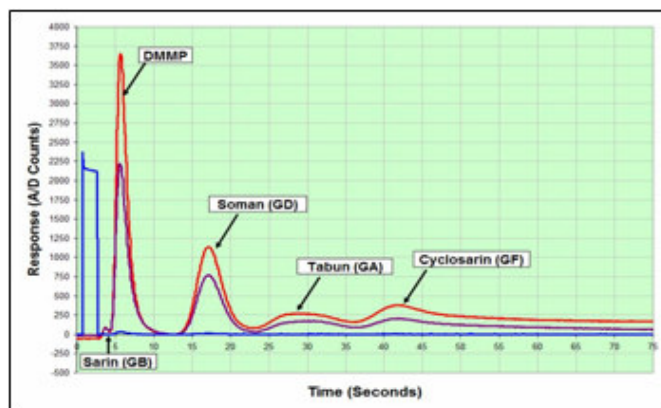


Figure 3. Separation of GB, DMMP, GD, GA, and GF in the same analysis cycle.

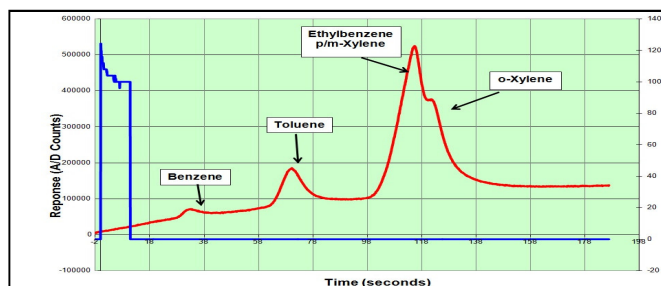


Figure 4. Detection of BTEX in water. Blue line is preconcentrator power, Red line is SAW response.

### Features and Specifications:

- Dimensions & weight: 7.5x5.25x2.25 inches, 740 g (1.6 lbs).
- Power: 4 hours on rechargeable Lithium polymer batteries or external 9V, 2A power supply.
- Computer interface: Standard RS-232 port
- Display: 2.1x0.75 inch LCD
- Low level detection in a 2 minute analysis cycle.
- Ambient air is the carrier gas, no need for specialty gases.
- Simultaneous analysis of all nerve and blister agents.
- Demonstrated detection of BTEX, TCE, & PCE.