

## How accurate are the results?

The proprietary substrate allows for clear detection with a high degree of accuracy not found in other samplers. Independently tested, the *Acu-Swab-R™* surface sampling kit has been proven to detect a variety of materials.

- Chemical warfare agents (CWA)
  - VX nerve agent
  - Mustard gas
  - Soman
- CWA precursors/degradation products
- Drugs and narcotics, such as methamphetamine
- Explosives
- Toxic industrial chemicals and materials
- Ability to extract for biological testing



Actionable knowledge,  
**where** you need it, **when** you need it.

### Acu-Swab-R™ Products

Product Number (P/N)	Product Name	Product Description	Graphic
ACU-S-001000	Acu-Swab-R™	Each: Individual vial/swab	
ACU-S-002000	RMX Side Car	Each: Individual side car	
ACU-S-003000	Acu-Swab-R™ Pack	Pack: 30 vials/swabs & protective case	
ACU-S-004000	Acu-Swab-R™ Field Sampling Kit	Kit: 50 vials/swabs reusable carry case 1 side car 1 razor 1 moistener	
ACU-S-005000	Acu-Swab-R™ Bulk Quantity Kit	Kit: 100 vials/swabs	

Contact us for pricing.

Other services we provide:



DEFENSE AND SECURITY



FOOD AND SAFETY



VETERINARY SERVICES



BEVERAGE SAFETY TESTING



CLINICAL DIAGNOSTICS

# Acu-Swab-R™

Quick, accurate analysis of trace-level samples in the field.

Contact us at 315-452-8000 or 1-800-724-0451 with any questions.

6274 Running Ridge Road, North Syracuse, New York 13212 • [www.acumendetection.com](http://www.acumendetection.com)

# What is the Acu-Swab-R™?

The Acu-Swab-R™ surface sampling kit, combined with the adapter (side car), is a highly sensitive, patent-pending chemical collection tool that enables trace-level detection and identification of chemical samples with handheld, in-the-field Raman and FTIR spectroscopy devices.

- Small, self-contained, easy to use
- Indefinite shelf life
- Improves the sensitivity of handheld Raman and FTIR devices

- Optimized for the Thermo Scientific FirstDefender™ RMX
- Solvent resistant for analyte extraction and GC/MS or LC/MS analysis
- Retains sample integrity for in-field and reach-back laboratory analysis



ENVIRONMENTAL TESTING

## Benefits

- Easy to use
- Lowers FirstDefender RMX™ level of detection by nearly five orders of magnitude
- Solvent-free field sampling and analysis of liquids and solids on surfaces
- Does not require any modifications to your existing FirstDefender RMX™ sensor
- Compatible with Thermo Scientific TruDefender™ FTX (FTIR-based instruments)
- Samples are safely sealed in a vial for easy transport to laboratories
- Non-destructive detection technique
- Allows additional analytical testing such as extraction or desorption (HPLC, GC, FTIR etc.)

## Applications

The Acu-Swab-R™ surface sampling kits can be utilized by police, military, first responders and fire departments across several fields of study and investigation, including:

- Biothreats
- Forensic sampling
- Industrial applications
- Environmental sampling for chemical and industrial plants

## Why is the Acu-Swab-R™ unique?

Samples are collected on a proprietary substrate that allows for enhanced sensitivity for trace-level analysis using handheld Raman (5 micrograms or more) or FTIR (200 micrograms or more) spectroscopy devices. The result is quicker, more efficient and more accurate identification. And, if you want to confirm your analysis at a reach-back laboratory, you can use the same sample taken from the initial collection since it is retained on the proprietary substrate surface. It's compatible with solvent extraction and GC-MS (gas chromatography–mass spectrometry) and LC-MS (liquid chromatography–mass spectrometry) analysis.

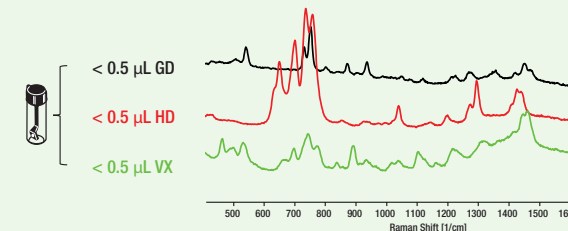
## How does it work?



Physical Specifications	Sizes (inches)	Weight (g)
Acu-Swab-R™ Surface Sampling Kit (ACU-S-001000)	1.9 x 0.6	7.3
Side Car Adapter for RMX (ACU-S-002000)	2.7 x 1.5 x 2.3	46

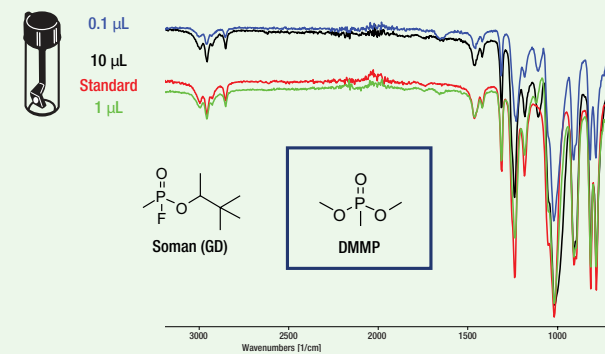
### Chemical Warfare Agent Droplet Testing

Tested by 3rd party surety lab – Avarint, LLC (formerly CUBRC)  
GC-MS recoveries used to determine transfer efficiencies



### Testing FTX - Nerve Agent Simulant (DMMP)

Detected neat compounds down to 0.1 µL with FTIR



### Technical Specifications

Compatible Detection Technologies	Raman, FTIR, GC-MS, HPLC and qPCR
Chemicals Tested	Chemical Warfare Agents (CWA, including VX, HD, GD), Chemical Warfare Agent precursors/degradation products, Drugs & Narcotics, Explosives (TNT, RDX, Ammonium Nitrate), Toxic Industrial Chemicals and Toxic Industrial Materials (TIMS)
Surfaces Tested	Glass, Stainless Steel, Brass, Aluminum, Copper, Plexiglass, Fiberglass, Painted Metal, CARC, Tychem, Plastic, Wallboard, Asphalt, Concrete
Enhances Low Level Detectability	Powdered Solids, Liquid Droplets, Solutions, Mixtures when Sampled from Operational Surfaces (Limit of Detection down to 5µg)

## qPCR of Field Samples

- *Bacillus globigii* (BG) released in field environment
- 5 samples collected from various surfaces following BG releases

### qPCR Amplification curves spores extracted from Acu-Swab-R™ samplers used in the field

- 4/5 samples detected BG using Acumen Detection's novel freeze-dried qPCR assay (*Acu-BG™*)

Location	Sample ID	# Copies Detected
Field	Acu-Swab-R™ Extract #1	200
Field	Acu-Swab-R™ Extract #2	85,000
Field	Acu-Swab-R™ Extract #3	ND
Field	Acu-Swab-R™ Extract #4	3,880
Field	Acu-Swab-R™ Extract #5	21,300

