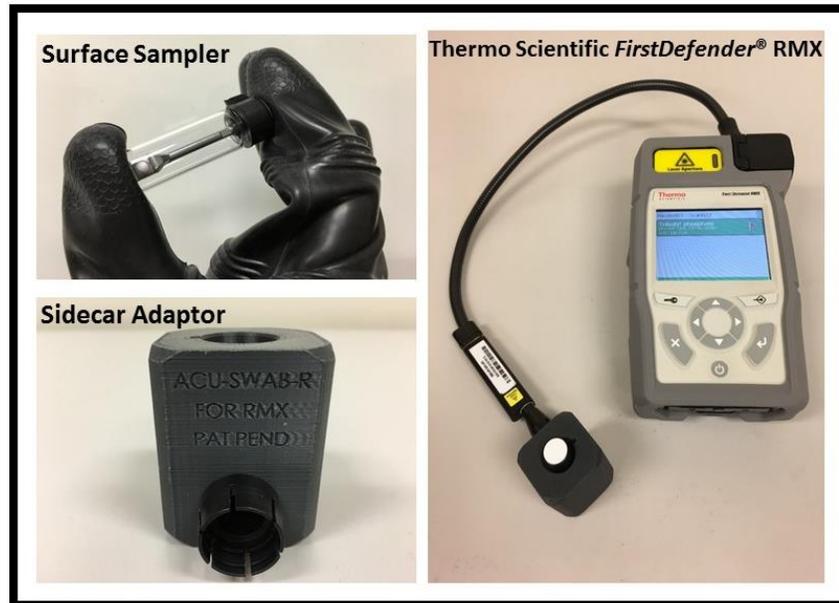


Acu-Swab-R™ Surface Sampling Kit



The Acumen Detection's *Acu-Swab-R*™ surface sampling kit (SSK) provides a mechanism to substantially enhance and extend the capability of Raman and FTIR spectroscopic sensors at the point of sampling the field. In addition, the SSK encapsulates the sample for safe transport to support laboratories for additional analyses by solvent extraction, thermal desorption, or elution of sampled biothreats. The SSK is designed to be sensor agnostic but customized swab sample vial adaptors allow it to interface seamlessly with your preferred sensor. Acumen Detection's Sidecar Adaptor (permits use of the SSK with the fielded Thermo Scientific *FirstDefender*® RMX handheld Raman spectrometer. For Raman, it is imperative to have proper alignment of the Raman laser with the sampler situated at the optimal focal distance to achieve the absolute lowest levels of detection.



How to use Acumen Detection's *Acu-Swab-R*™ Surface Sampling Kit

As Easy As
1, 2, 3....

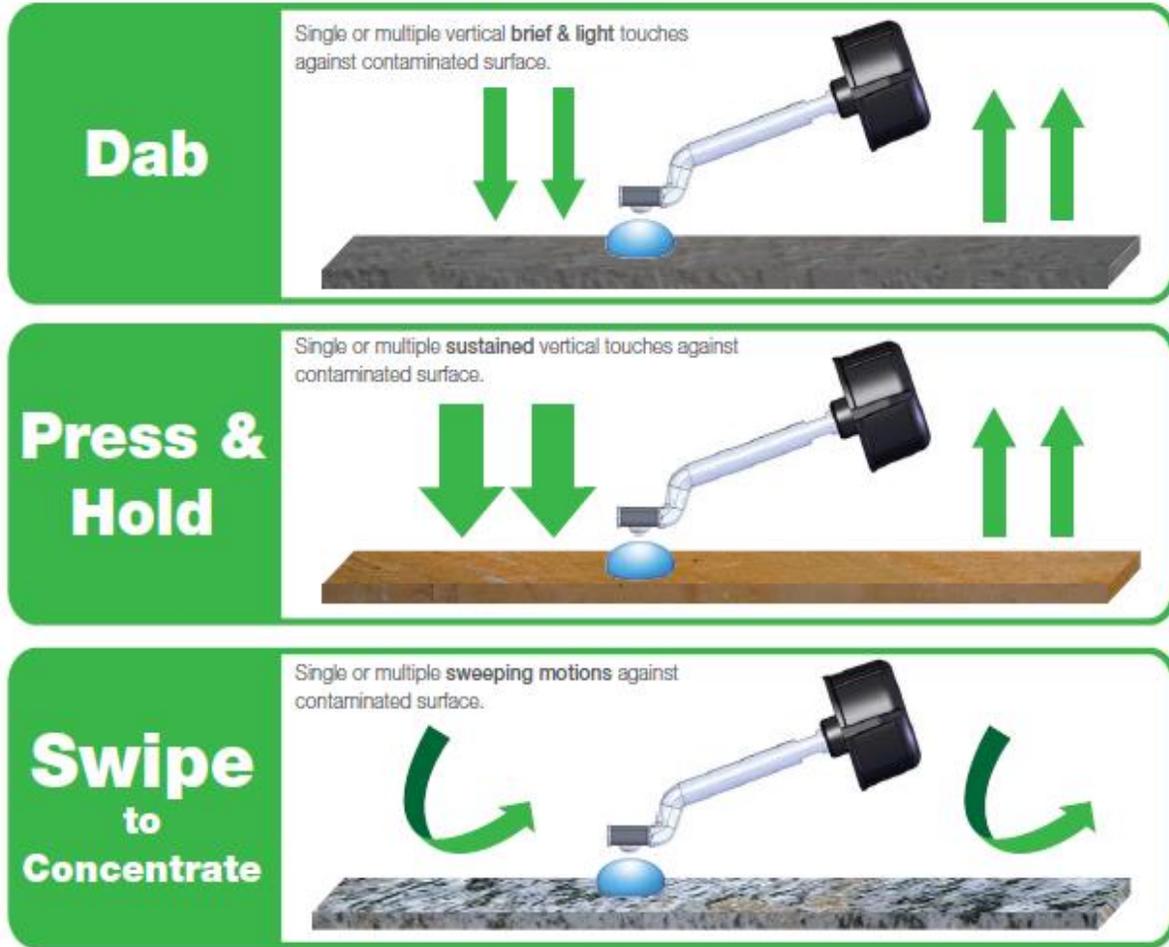


Preferred sampling techniques are highly dependent on the specific contamination situation encountered. The enclosed guide will help determine how to effectively use the *Acu-Swab-R*™ Surface Sampling Kit that includes the Sidecar Adaptor specifically designed and tested with the Thermo Scientific *FirstDefender*® RMX.

The absorbent proprietary collection substrate used on each sampler requires some care to properly use, which is discussed in this guide. Due to the fact that the collection substrate is absorbent, it is also friable, and therefore, rubbing the sampler against rough surfaces is NOT advised. Instead, follow the sampling techniques for the *Acu-Swab-R*™ provided to determine the appropriate technique for maximizing concentration of the target sample and prevent damage of the collection substrate. Under no circumstances is it necessary to press hard on the small *Acu-Swab-R*™ sampler. If the stem is bent, it will decrease the accuracy of the device. Simply contacting the targeted area generally transfers sufficient material to the sampler.

Sampling Techniques

The following graphics demonstrate the different approaches (dab, press & hold and swipe) for collecting samples.



Adhered Solid Residue Options

If the sample is stuck to the surface, the following steps can be taken to lift a swab for detection.

Moisten

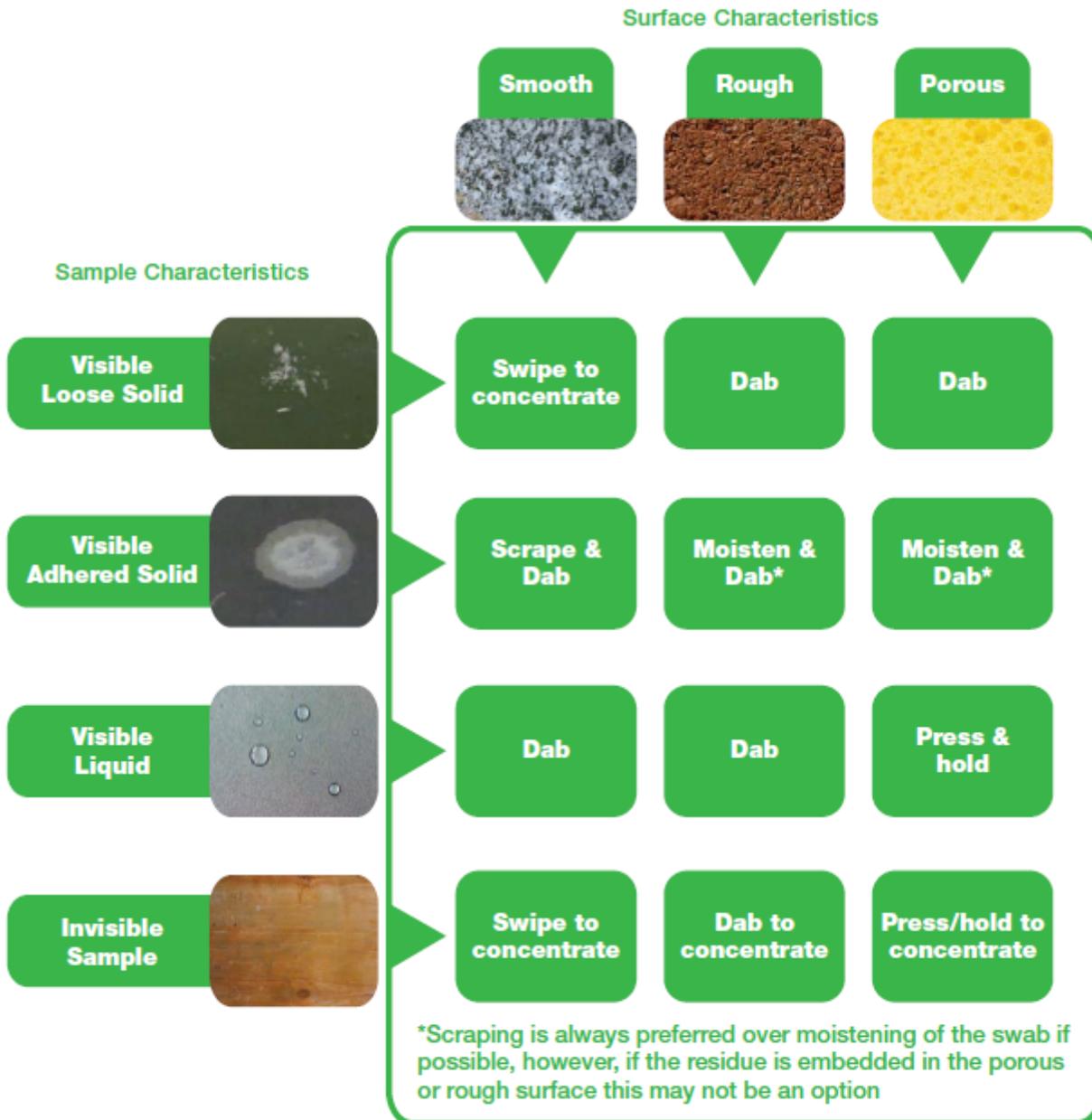


Scrape



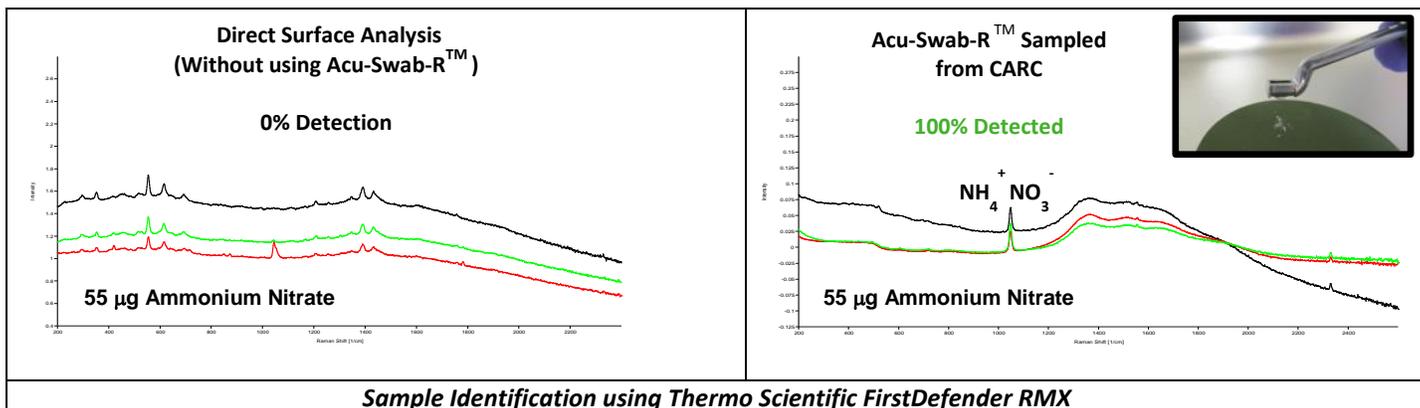
Sampling Techniques

The following graphic demonstrates the different approaches (dab, press & hold and swipe) for collecting individual samples from different surface characteristics. For example, if the sample is a visible liquid on a smooth surface, it is recommended the user quickly dabs the surface sampler in the liquid.



Empirical Test Data:

Tested against live explosives and independently tested by CUBRC (Avarint, LLC) against live chemical warfare agents. The *Acu-Swab-R*TM has also been tested against biosimulants released and collected in the field.



Physical Specifications	Size (inches)	Weight (g)
<i>Acu-Swab-R</i>TM Surface Sampling Kit (ACU-S-001000)	1.9 x 0.6	7.3
Sidecar Adaptor for RMX (ACU-S-002000) <small>*Other Raman sidecars may be made available upon request</small>	2.7 x 1.5 x 2.3	46

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 and Narcotics, Explosives (TNT, RDX, Ammonium Nitrate), Toxic Industrial Chemicals (TICs), 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 5 µg)

For more information on Acumen Detection products, please contact us at info@acumendetection.com