M-Vac Systems, Inc.
www.m-vac.com
(801) 523-3962

M-Vac Forensic DNA Collection System

M-VAC FORENSIC DNA COLLECTION SYSTEM

The M-Vac System is a wet-vacuum based forensic DNA collection device that is helping investigators solve more crime. It has been used on dozens of cases and has produced DNA profiles numerous times when traditional methods such as swabbing and cutting have failed to produce viable results. It is ideal for touch DNA scenarios, and can capture many times more DNA material than other methods from porous surfaces like clothing or other fabrics as well as rough surfaces such as rock, brick or concrete. Investigators who are using the M-Vac System are seeing impressive results and are moving many cases forward.

Extension tubing is shipped in sterile packaging and ranges from 5 to 60 ft lengths.

The M-Vac includes a heavy-duty cart for transport and use at the crime scene.

The M-Vac and Sampling Head are shipped in sterile packaging and sold in cases of 10 each.

The sterile, DNA-free buffer solution is shipped in sterile packaging and is sold in cases of 10 each.

The DNA Filtration Unit is shipped in sterile packaging and is sold in cases of 12 each.

How It Works

The M-Vac's patented collection method applies a sterile solution to the surface and simultaneously vacuums up the DNA material from the targeted substrate. The solution and DNA material are then captured in the attached collection bottle which is then filtered and sent to the lab for further processing. This unique collection method is both scalable and more sensitive so covering larger surface areas and/or collecting minute amounts of DNA are very feasible.

DNA collection of suspected physiological fluids from porous and non-porous surfaces.

After area of interest is swept for DNA, pour the collected buffer solution through the filter, seal filter and send to lab for analysis.

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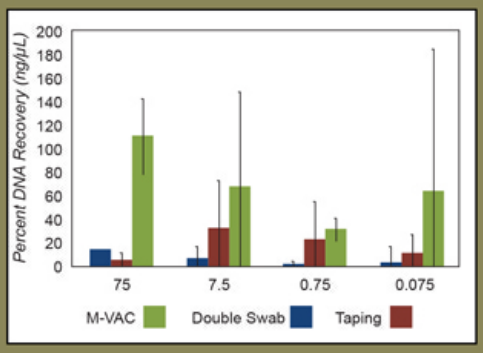
CASE SUMMARIES & INDEPENDENT STUDIES

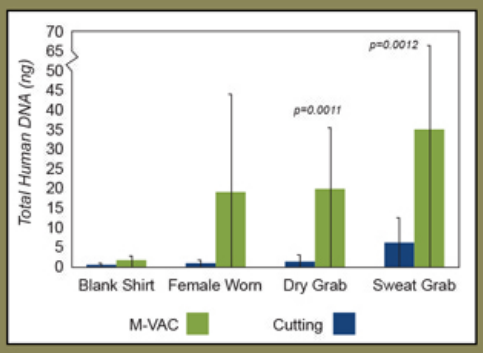
In these two studies, traditional biological collection methods such as the double swab method, taping and cutting are compared to the M-Vac through the collection of different dilutions of blood and touch DNA.

Results from Boston University Study for blood on denim



Percent DNA recovery of blood (0.075-75 µL) using various collection methods on denim with error bars representing the 2SD calculated using the theory of propagation of random error.

Results from University of California Davis for touch DNA on fabric



Average human touch DNA recovered from shirts.

Krystal Beslanowitch - Homicide Cold Case

In 2013, the M-Vac System helped solve an 18 yr old cold case homicide by collecting touch DNA from a rock. The victim, 17 yr old Krystal Beslanowitch, was found lying face down next to a river in rural Utah. A bloody rock that was obviously used to bludgeon her to death was next to her. The Wasatch County Sheriff investigators had little else to go by.

Over the next two decades investigators pursued every angle possible, but any lead to the alleged killer went cold. At the time, despite the suspicion that the killer likely deposited epithelial cells on the bare side of the rock, the technology available could not produce a DNA profile. Even when forensic lab processes reached the level of sensitivity where it became feasible, using traditional methods investigators could not collect enough DNA material to generate a viable profile. Then they were introduced to a wet-vacuum based method called the M-Vac. They decided to try the new method and it turned everything around.

In September of 2013, the alleged killer was arrested. The DNA material found on the rock tied the suspect to the crime. The evidence was always there, but the technology to collect it had to be developed and utilized for the case to move forward. The suspect now awaits trial.

Water Soaked Clothing – Homicide/Possible Sexual Assault

The victim, a female child, was found partially submerged in water and was recovered within 10 hours of the last confirmed contact. Although the victim showed signs of sexual assault, the examination by the coroner and the subsequent probative serological tests revealed no signs of semen or spermatozoa. The other leads in the case did not produce enough results to move the case forward. The case stalled.

The victim's clothing was sent to a private forensics lab with an M-Vac. Areas of the clothing where semen should have been and locations where the perpetrator could have touched were examined with an M-Vac. A minimal amount of male DNA was obtained from the area where the semen would likely have been located, 140pg. The ratio of female to male DNA was 6000:1, but the YFiler YSTR amplification kit produced a 9 of 17 loci partial profile. The case was moved forward through greater sensitivity and scalability.

Copies of the case summaries and independent evaluations are available from M-Vac Systems by request.

STANDARD M-VAC PACKAGE COMES WITH:

1 each - Support Equipment Case (SEC) with cart - 110 or 230 Volt
20 each - M-Vac and Sampling Head
10 each - Sterile Buffer Solution - 1 liter
24 each - Filter Unit
2 each - M-Vac Extension Tubing 10 ft
2 each - M-Vac Extension Tubing 5 ft
On-site Training

Price list and item descriptions available upon request