

**CHALLENGES ASSOCIATED WITH MEDIA
IN
CONTACT SAMPLING**

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**SINCE 1989 WE HAVE RECOGNIZED THAT
PROGRESS IN TRACE DETECTION IS LIMITED BY
INADEQUATE SAMPLING**



WHAT ARE WE SWABBING FOR?

Fingerprints or glove prints from bomb maker containing embedded explosives particles

- luggage, electronics

- hands and clothing

- vehicles

- wallet, car keys and especially cell phones**

Airborne particles from bomb factory

- luggage, electronics, cell phones

- hands and clothing

Contamination from handling explosives

- hands and clothing

- vehicles

- wallet, car keys and especially cell phones**

SAMPLING IDENTICAL TO CLEANING

Lessons from cleaning technology and cleaning machines

How to clean

Where to clean is our expertise

Key areas only

WE KNOW WHAT WE NEED TO DO
WE KNOW THE DIRECTION



FORGET ABOUT THE TRADITIONAL APPROACHES



SANDBLASTING

WAY TOO AGGRESSIVE and impractical
It removes the entire surface



SANDPAPER ALSO REMOVES SURFACE

WIPE SHOULD BE ROUGH BUT NOT ABRASIVE

AVOID SUBSTRATE FROM DAMAGING EXPLOSIVES DETECTOR



HIGH PRESSURE WATER JET

IMPRACTICAL AND MESSY



WET MOPPING A FLOOR

REQUIRES LIQUID CLEANING AGENT TO CLEAN AND DISLODGE PARTICLES

SUGGESTS MOIST WIPES MAY BE USEFUL ON LARGE SMOOTH SURFACES

For explosives residue select only a few key regions to sample



CLEANING A MIRROR

WIPING WITH WET AMMONIA CLEANING SOLUTION AND RUBBING
MOIST SWAB ON SMOOTH SURFACE EFFECTIVE AT REMOVING FINGERPRINTS

This is an excellent self testing surface since the fingerprints are visible



VACUUM CLEANING OF FABRIC

VACUUMING ALONE CAN BE EFFECTIVE FOR DRIED SAMPLES



Beware of explosives dogs as they can be contaminated

CARPET CLEANING

FOAM CHEMICAL CLEANER, RUBBING, VACUUM

SUGGESTS MOIST SWABBING AND VACUUM EFFECTIVE FOR EXPLOSIVES

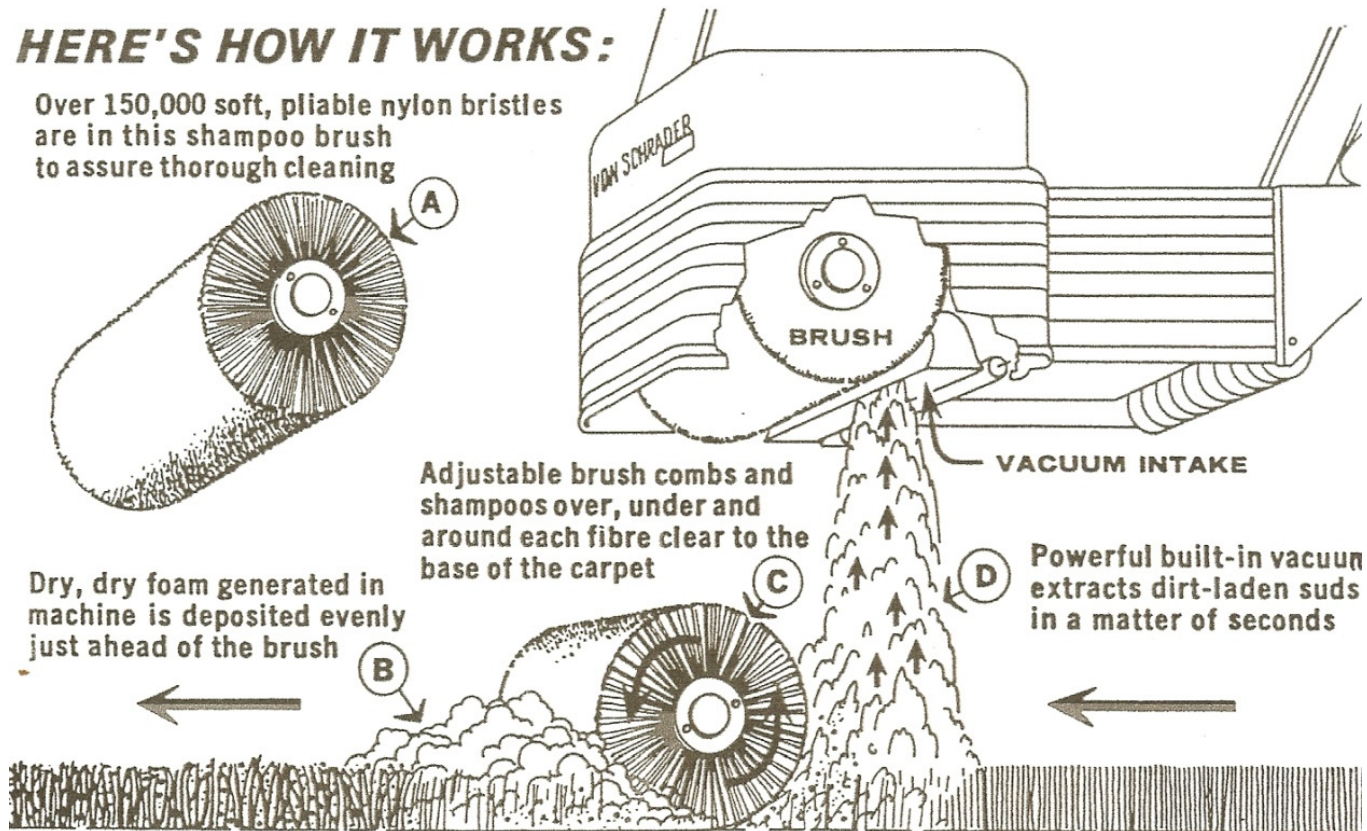


CARPET CLEANING TECHNOLOGY

WET FOAM, BRUSH VIGOROUSLY, VACUUM, TRAP PARTICLES
CONCEPT MAY BE VIABLE FOR EXPLOSIVES SAMPLING

HERE'S HOW IT WORKS:

Over 150,000 soft, pliable nylon bristles are in this shampoo brush to assure thorough cleaning



WHOLE BODY SAMPLING NOT PRACTICAL FOR AIRLINE PASSENGERS



JUST FOCUS ON HANDS

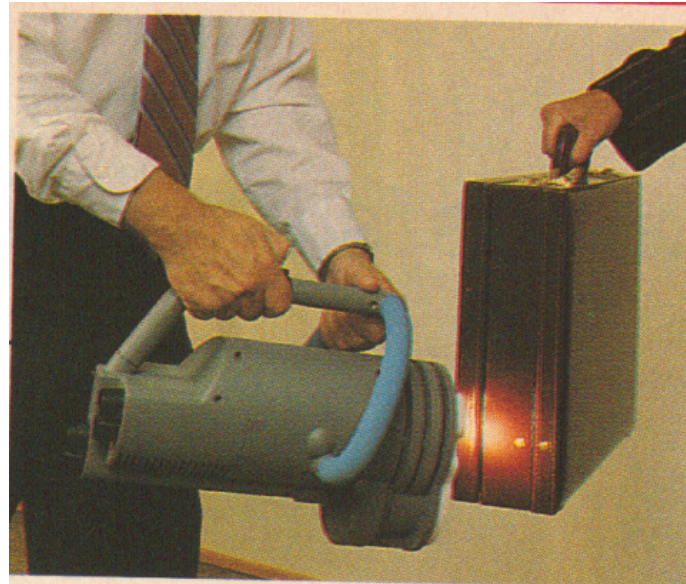
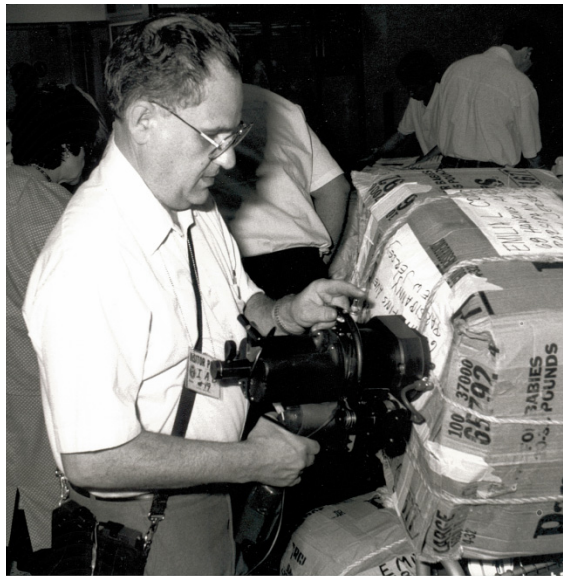
WATER, SOAP AND RUBBING

SUGGESTS WIPES WILL BE MORE EFFECTIVE IF MOIST



DISLODGE PARTICLES WITH HEAT AND THEN VACUUM

WORKED WELL BUT SOMETIMES BURNED FABRIC, CLOTHES AND SKIN



WHERE TO SAMPLE

People

Hands
Side pockets
Waist, belt and fly
Cell phone, wallet, keys



Luggage

Handles or straps
Zipper pulls
Latches



Packages

Edges and Labels

Vehicles

Steering wheel
Gear lever
Door handles

Hood and trunk



NEED TO COLLECT ALL TYPES OF EXPLOSIVES

Vapor pressure of key materials vary by seven orders of magnitude

- RDX, PETN, TNT, NH_4NO_3
 - Need particles
 - Fingerprints stick to surfaces
 - Amenable to wiping
- EGDN, NG, DNT's, PEROXIDES
 - Some residues evaporate quickly
 - Wipe needs absorbant coating or stripe to hold vapor
- UNKNOWN EXPLOSIVE FORMULATIONS

IDEAL WIPE MATERIAL

- Rough but not abrasive
- Absorbant for explosives vapors if detector is vapor capable
- **Moist with solvent that does not interfere with detector**
- Wipe material must be stable when heated
- Reusable or low cost

BE CAREFUL OF WHAT WE WISH FOR

All explosives
All surfaces
All conditions
All the time



