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CPRC CCRP

CANADIAN POLICE RESEARCH CENTRE CENTRE CANADIEN DE RECHERCHES POLICIÈRES

TR-04-2001
Drug Section Safety Cabinet

Glenn Carroll
Canadian Police Research Centre

TECHNICAL REPORT
June, 2001

Submitted by:
Canadian Police Research Centre

NOTE: Further information about this report can be obtained by calling the CPRC information number (613) 998-6343

NOTA: Pour de plus ample renseignements veuillez communiquer avec le CCRP au (613) 998-6343

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Executive Summary

In response to incidents of exposure to street drugs by Drug Section members, the Canadian Police Research Centre worked with a supplier of biological fume hoods to develop a self-contained portable unit which could be used in non-laboratory environments, for example in detachment offices, warehouses, airports, etc. The successful development has led to a product line of innovative fume hoods and drying cabinets for law enforcement use. Not only are worker health and safety addressed, but the integrity of the exhibit material is ensured by eliminating cross-contamination.

Sommaire

Par suite des risques d'exposition aux drogues de la rue encourus par les membres de la Section antidrogue, le Centre canadien de recherches policiè res a travaillé en collaboration avec un fournisseur de hottes fermées biologiques afin de créer un groupe portatif autonome pouvant être utilisé à l'extérieur des laboratoires, notamment dans les bureaux des détachements, les entrepôts, les aéroports, etc. Ce projet s'est soldé par la création d'une gamme de hottes fermées et d'armoires chauffantes novatrices destinées aux services policiers. Ces produits satisfont aux exigences en matière de santé et sécurité des employés et ils protègent l'intégrité des pièces à conviction en éliminant le risque de contamination transférée.

Acknowledgement

The Canadian Police Research Centre would like to thank Susan Eren and Aldo Covelli of Phoenix Bio-Tech Corp. (the Canadian suppliers), and Greg(ory) Dobbyn of AirClean Systems (the manufacturer), Cpl. John Green of the RCMP Bowmanville Drug Section, and Dr. Brian Yamashita of the RCMP Forensic Identification Research Section for their cooperation and commitment to bringing this project to a successful completion.

Remerciements

Le Centre canadien de recherches policières tient à remercier Susan Eren et Aldo Covelli de la Phoenix Bio-Tech Corp. (les fournisseurs canadiens), Greg(ory) Dobbyn de la AirClean Systems (le fabricant), le cap. John Green de la Section antidrogue de la GRC à Bowmanville, ainsi que le D[r] Brian Yamashita du Groupe des recherches en identité judiciaire de la GRC de leur collaboration et de leur engagement à l'égard de ce projet.

BACKGROUND:

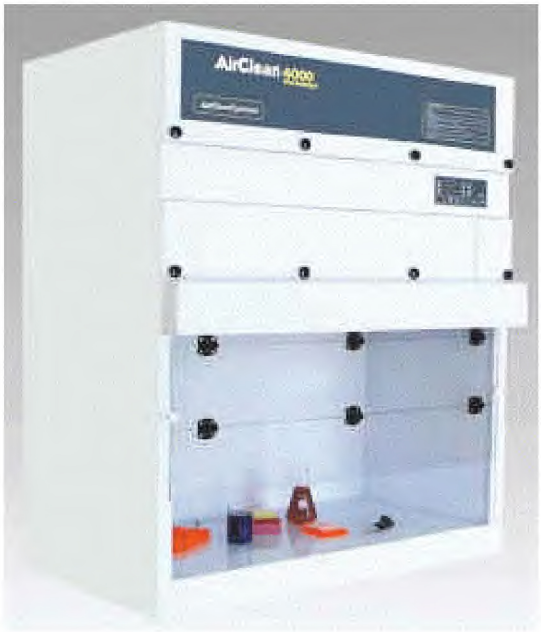
Law enforcement personnel in drug sections have a requirement to handle street drugs which are transported in a variety of containers and packaging. In the course of their work they are often required to open these packages, thereby placing themselves at risk to exposure from the drugs themselves (usually in particulate form) and associated solvents (in vapour form). Furthermore, it is imperative to preserve the integrity of the evidential material by eliminating cross-contamination.

CURRENT STATUS:

Proper facilities and safety equipment are not in widespread use in law enforcement agencies for this purpose. The proposal requested purchase of a prototype mobile safety cabinet with built-in HEPA filter to trap particulates and activated carbon filter to trap vapours. RCMP Forensic Identification Research and Review Section agreed to partner in this proposed project by liaising with the manufacturer and users.

After meeting with several suppliers and manufacturers, Phoenix Bio-Tech Corp. (the Canadian suppliers), and Greg(ory) Dobbyn of AirClean Systems (the manufacturer) expressed an interest in designing and building a prototype unit for field evaluation. The unit was delivered to RCMP Bowmanville (Ontario) Detachment and underwent a one year trial. The user evaluation appears as Appendix 1 of this report.

Refinements by the manufacturer resulted in the following system now being commercially available.



The AC4000LFC2 is designed for search and seizure operations in police detachments, at border crossings, at airports, and also for drug analysis in a laboratory setting. The unit protects both the operator and the evidence from exposure and contamination.

The unit provides a Class 2 laminar flow environment for opening and analysis of evidence with complete protection of the operator from exposure to toxic particulate materials or gases. The unit is completely self-contained and designed to be mobile so that it can be moved to specific critical locations.

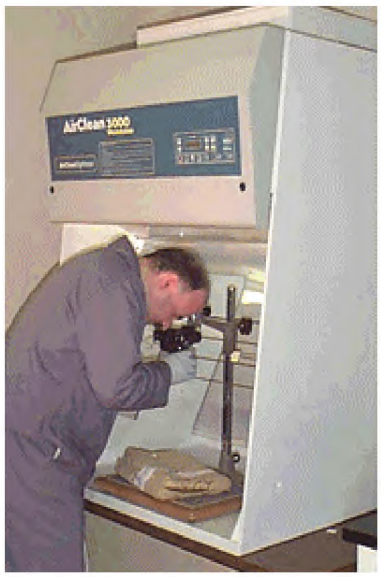
Features:

- Class II Laminar Flow Hood.
- All polypropylene "seamless" construction for maintenance of a clean sterile environment.
- Optional AirSafe™ automatic controller for constant monitoring of airflow and filter conditions. One touch control of cabinet functions.

- 30-Watt fluorescent light.
- Removable perforated base for ease of cleaning.
- An optional spill drain is available to remove liquids collected in the base.
- Pre-filters located in base capture particulate to 0.3 μm at 95% efficiency.
- Sash openings of 8 inches and 16 inches.
- High efficiency HEPA filter filters particles to 0.3 μm at 99.997% efficiency.
- Carbon filters for gases, may be installed in either recirculaung mode or to filter the total exhaust.
- Cabinet is shipped ready for use.
- No installation cost.

In addition to the safety cabinet already described, the supplier and manufacturer have developed a line of products for a variety of related law enforcement requirements.

FORENSICS WORKSTATION

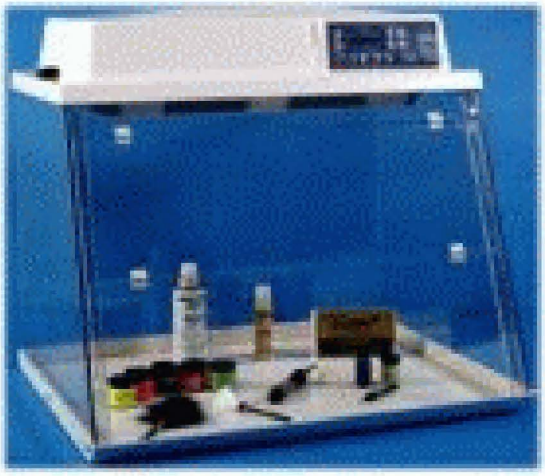


The AirClean Systems Forensics Workstation is an ideal unit for protecting the operator from toxic gases and particulate materials used in routine analysis. A modified IDENTIFICATION version is available to hold a macroviewer with camera stand. The unit protects the operator from residual isocyanoacrylate and aluminum-based powders used on exhibit materials. Other commonly used chemicals such as methanol are also contained.

Features:

- All surfaces in contact with corrosive fumes are structural polypropylene - NO MORE RUST!!
- Modified sash for Identification work.
- Special "COCKTAIL" carbon filter for common forensics chemicals.
- HEPA filter removes powders at 99.997% efficiency to 0.3 Microns.
- Easily cleaned to prevent cross-contamination between cases or batches of documents.
- AIRSAFE controller monitors and displays airflow face velocity on Alphanumeric display.
- Filter condition is monitored by AIRSAFE controller and user is warned when to change the Carbon and HEPA filters.
- 30 Watt integral fluorescent light.
- Optional custom fixtures also available such as:
  - VENTED OR UNVENTED BASE CABINETS - Available in any height with a variety of shelf options.
  - BUILT IN POLYPROPYLENE SINKS - Base may have built in polypropylene sinks with drain and water connections
  - SERVICES DUCT WITH ACCESS PANEL - For electrical and water outlets.
  - STURDY CART - Makes system portable. Cart has 4 inch wheels for ease of movement.

AC600 FORENSICS WORKSTATION



Protects the operator and the environment from toxic gases, vapours and particles.

Typical Applications

- Forensic applications including fingerprinting involving the use of isocyanoacrylate and aluminum powders.
- Portable forensic hood for onsite analysis of drugs and containment of infectious agents.

The AC600 is an ideal unit for the containment of common chemicals and powders used in forensic analysis. The unit can be fitted with both carbon filters for gases and HEPA filters for particles. It has a detachable base and totally collapses for in-field transportation.

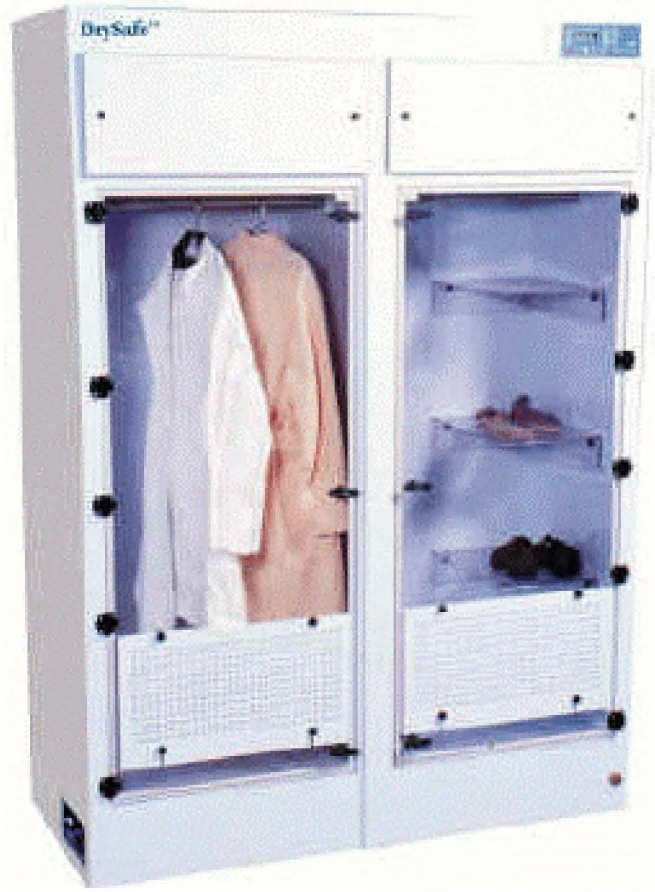
The unit meets O.S.H.A. standards for fume hood face velocity and ANSI Z9.5 standards for ductless fume hoods.

Features:

- All thermoplastic construction with a choice of sash and enclosure materials for specific applications.
- Extremely quiet operation.
- Can be quickly disassembled for field applications.
- Optional sturdy trolley affixes directly to the unit for portable operation.
- Nominal width is 32 inches, depth 24 inches. Height is optional for different applications.

- Operates from normal 110 or 240 Volt electrical outlet.

FORENSIC EVIDENCE STORAGE / DRYING CABINET



This cabinet protects evidence from airborne and cross-contamination while eliminating the odours and bacteria associated with this process. The units are configured to clean the incoming "drying" air through HEPA filtration and filter the cabinet exhaust through a combination of carbon and HEPA filtration. This combination assures evidence integrity without compromising the well being of co-workers.

Features

- All surfaces in contact with vapours are structural polypropylene.
- Automatic two-speed operation increases airflow to maximum when door is opened.
- Bonded carbon filter removes putrid odours from decomposition and other gases. NO FILTER DUST!
- Exhaust air is HEPA-filtered to remove particles and bacteria to 99.997% efficiency at 0.3 μm.
- HEPA filter change and low airflow alarms.

- Optional AirSafe™ automatic controller for constant monitoring of airflow and filter conditions. One touch control of cabinet functions such as:

- timing of evidence drying cycle.
- monitoring the main HEPA and carbon filter life,
- automatic pump control and timing,
- automatic "lockout" feature to ensure use of correct filters,
- self-diagnosis to ensures safe operation,
- two-speed automatic blower setting with user preset low speed from 0-100% of blower max,
- user control of drying time.

- Filter Access. The main HEPA and bonded carbon filter is safely locked from the user and may be accessed with a special key when replacement is needed.
- Easily cleaned to prevent cross-contamination between exhibits and between cases.
- Optional wash down hose and drain system.
- Custom shelves and drying racks available.
- Locking front doors can be clear LEXAN or solid polypropylene.
- Choice of door panel options.
- Optional automatic waste pump for removal of waste water up to 200 feet from cabinet.
- Optional fluorescent light inside of cabinet.
- Available in 30", 36", 60" & 72" widths. Standard depth is 28 inches.

Further product information can be obtained from:

the Canadian supplier:	the manufacturer:
Phoenix Bio-Tech Corp. 6810 Kitimat Road Mississuaga, Ontario L5N 5M2 www.phoenixbiotech.com Toll Free: 1-800-701-7450 Phone: 905-826-6330 Fax: 905-826-3288	AirClean Systems Raleigh, North Carolina USA www.aircleansystems.com Toll Free: 1-800-849-0472 Phone: 919-876-6142 Fax: 919-876-6189

CANADIAN POLICE RESEARCH CENTRE  CENTRE CANADIEN DE RECHERCHES POLICIÈRES

PROTOTYPE EVALUATION

Project Title: **Drug Section Safety Cabinet** GL 1588-037

Objective: Law enforcement personnel in drug sections have a requirement to handle street drugs which are transported in a variety of containers and packaging. In the course of their work they are often required to open these packages, thereby placing themselves at risk to exposure from the drugs themselves (usually in particulate form) and associated solvents (in vapour form).

Proper facilities and safety equipment are not in widespread use in law enforcement agencies. This project involves the fabrication of a prototype mobile safety cabinet with built-in HEPA filter to trap particulates and activated carbon filter to trap vapours.

To: Cpl. J. Green
Toronto East Detachment
R.C.M. Police
415 Baseline Rd. W., Box 1500
Bowmanville, ON L1C 4V7

Phone: 905-697-6000 Fax: 905-697-6101

Evaluator's Name: Cpl. John Green,
Bowmanville Drug Section

OVERVIEW (See explanations following page):

1. ***Benefits***: Very useful and long overdue.

2. ***Aware***: No

3. ***Purchase***? O YES O NO

Cost ? How much: ? ***How many***:

4. ***Canadian Company***: This is a health & safety issue and all units dealing with drugs or any hazardous materials should have this type of equipment.

5. ***Other Potential Markets*** : Identification Sections, clandestine lab. investigators.

Appendix 2.

EVALUATION CRITERIA

These criteria have been developed to assist you in responding to the CPRC. If you have additional suggestions, please submit them.

- Please return the form by the ***Return Date*** indicated.

- If not you personally, please send this questionnaire to someone **who can best evaluate** it within your organization.

- The ***evaluator's phone and fax numbers*** should be indicated for CPRC follow up if required.

The reasons for the conclusion are listed, keeping in mind the following:

1) Does/Do the ***benefit(s)*** support this research? Be critical in your remarks.

2) Are you ***aware*** of any related research? If yes, please explain giving details such as where and who.

3) Would your organization ***purchase*** such a piece of equipment if it were available? If yes, what is your estimate of ***how much*** this piece of equipment should cost. If yes, ***how many*** do you estimate your organization would purchase.

4) Are you aware of any ***Canadian Company*** that would be interested in producing this piece of equipment?

5) Are there other areas within your organization, or other organizations that would be a ***potential market*** for the product?

- Thank you for your assistance. -

Appendix 3.

EVALUATION CRITERIA

		Excellent	Very good	Good	Fair	Poor	Not Applicable
1)	Effectiveness of equipment (for intended purpose).....	❑	❑	❑	❑	❑	❑
2)	Ease of Use / Manoeuvrability.....	❑	❑	❑	❑	❑	❑
3)	Compatibility with other equipment...	❑	❑	❑	❑	❑	❑
4)	Appearance	❑	❑	❑	❑	❑	❑
5)	Colour	❑	❑	❑	❑	❑	❑
6)	Weight / Size	❑	❑	❑	❑	❑	❑
7)	Ease of Use / Comfort.....	❑	❑	❑	❑	❑	❑
8)	Durability	❑	❑	❑	❑	❑	❑
9)	Maintenance	❑	❑	❑	❑	❑	❑
10)	Accessories (list each piece if applicable)	❑	❑	❑	❑	❑	❑
11)	Overall rated performance.....	❑	❑	❑	❑	❑	❑

12) Evaluation Conditions (eg location, types of samples, frequency of use)

Members are using this to take samples of various drugs from cannabis products to ecstasy. Most of our samples are beingtaken in the safety cabinet. Its not just used for vapours but mainly for the residue from coke, heroin and ecstasy.

13) Suggested Improvements

The location of the controls (upper right) is difficult for some people to reach.

14) Additional comments (including any precautions, warnings/cautions)

Liquids may cause difficulty with the filters on the bottom if there is spillage.

Evaluator's signature