

Microgram

Bulletin

Published by:

The Drug Enforcement Administration
Office of Forensic Sciences
Washington, DC 20537

The U.S. Attorney General has determined that the publication of this periodical is necessary in the transaction of the public business required by the Department of Justice. Information, instructions, and disclaimers are published in the January issues.

- JULY 2008 -

- INTELLIGENCE ALERT -

**COCAINE SMUGGLED IN ENGINE PISTONS IN PORT OF SPAIN
AND CUNUPIA, TRINIDAD AND TOBAGO**

The Trinidad and Tobago Forensic Science Centre (Port of Spain) recently received two separate submissions of engine pistons (60 in total), each containing a compressed, cream colored powder, suspected cocaine (see Photo 1). The first exhibit (24 pistons) was seized by Organised Crime Narcotics and Firearms Bureau (OCNFB) personnel at an express mail handling facility in Port of Spain, and were destined for Madrid, Spain (no further details). The second submission (36 pistons) was seized by OCNFB personnel at the suspect's residence in Cunupia (Trinidad). Both exhibits were packaged in identical red and white cardboard boxes printed "PC PISTONS ENGINE PARTS" (six pistons per box). Analysis of the powders in the first exhibit (total net mass 6.52 kilograms) by color testing (Scotts - positive), GC/FID, GC/MS, and FTIR/ATR confirmed 51.0 percent cocaine



Photo 1

hydrochloride and lactose (not quantitated). Analysis of the powders in the second exhibit (total net mass 10.33 kilograms; same techniques) confirmed 57.0 percent cocaine hydrochloride and lactose (not quantitated). This was the first such submission to the laboratory.

* * * * *

- INTELLIGENCE ALERT -

**SOLUTIONS OF 4-ETHYL-2,5-DIMETHOXYPHENETHYLAMINE (2C-E)
IN DROPPER BOTTLES IN KENTUCKY**

The Kentucky State Police Western Laboratory Branch (Madisonville) recently received two plastic dropper bottles, each containing approximately 8 milliliters of clear liquid, suspected 4-bromo-2,5-dimethoxyphenethylamine (2C-B; see Photo 2). The exhibit was acquired by the Kentucky State Police (location and details sensitive). The base solvent was not identified. Evaporation of a 1 milliliter aliquot to dryness produced white crystals. Analysis of a methanolic extract by GC/MS, GC/FID and FTIR/ATR, however, indicated not 2C-B but rather 4-ethyl-2,5-dimethoxyphenethylamine (2C-E, not formally quantitated but a moderate loading based on the TIC). This was the first submission of 2C-E to the laboratory.



Photo 2

* * * * *

- INTELLIGENCE ALERT -

“FLAVORED COCAINE” IN MODESTO, CALIFORNIA

The DEA Western Laboratory (San Francisco, California) recently received an exhibit consisting of 13 tied, clear plastic bags containing pink, off-white, and white powders, all with a generic, sweet, fruity odor, purported strawberry, lemon, and coconut flavored cocaines (see Photo 3). The exhibit was seized by a DEA Special Agent in Modesto, California, pursuant to a long-running investigation (no further details). The exhibit was split into four sub-exhibits based on color, packaging, and initial screens. Analyses were conducted by color testing (cobalt thiocyanate), FTIR, GC/MS, and GC/IRD. Analysis of the first exhibit (four bags containing pink powder, total net mass 113.1 grams) confirmed 24.4 percent cocaine hydrochloride, diltiazem, and inositol. Analysis of the second exhibit (one bag containing off-white powder, total net mass 30.2 grams) confirmed 17.1 percent cocaine hydrochloride,



Photo 3

diltiazem, and inositol. Analysis of the third exhibit (seven bags of white powder, total net mass 193.0 grams) confirmed 19.8 percent cocaine hydrochloride and lactose. Analysis of the fourth exhibit (one bag of white powder, total net mass 28.5 grams) confirmed 29.3 percent cocaine hydrochloride and mannitol. The diltiazem and sugars were not quantitated. The fruity odor was not identifiable (that is, it was not a specific fruit scent), and was identical in all 13 bags regardless of the alleged flavor. To date, the various exhibits submitted in this case (including various free samples and purchases) are the first examples of “flavored cocaine” seen at the Western Laboratory.

[Editor’s Notes: Although flavored “hard” drugs (notably “strawberry meth”) have received extensive press in the mass media, to date very few such exhibits have been submitted to the DEA Laboratories. This is the first report of “flavored cocaine” to *Microgram Bulletin*.]

* * * * *

- INTELLIGENCE ALERT -

**MDMA POWDER (ADULTERATED WITH MONOSODIUM GLUTAMATE)
AT JFK AIRPORT, NEW YORK**

The DEA North Central Laboratory (Chicago, Illinois) recently received three exhibits consisting of two plastic bags of off-white, crystalline powders and one plastic bag of finely-ground, light green powder, all suspected MDMA (see Photos 4 and 5). The first two exhibits (origin not reported) were seized by Customs and Border Patrol personnel at the JFK International Mail Facility (Jamaica, New York), while the third was seized at a residence in Cleveland, Ohio (the relationship between the exhibits was not disclosed). Analysis of the first and second exhibits (total net masses 299.6 and 304.7 grams, respectively) by color testing (ferric chloride (red-orange)), FTIR, GC/FID, and GC/MS confirmed 49.1 and 62.5 percent MDMA hydrochloride, respectively, both cut with monosodium glutamate (MSG; not quantitated). Analysis of the green powder (total net mass 11.8 grams) by FTIR, GC/FID, and GC/MS, however, indicated not MDMA but rather a low percentage of mescaline (not quantitated). Microscopic examination of the green powder indicated that it was plant material, but it could not be further identified (however, the identification of mescaline suggests it was prepared from one of the peyote-type cacti). These are the first submissions of MDMA hydrochloride/MSG powders to the North Central Laboratory.

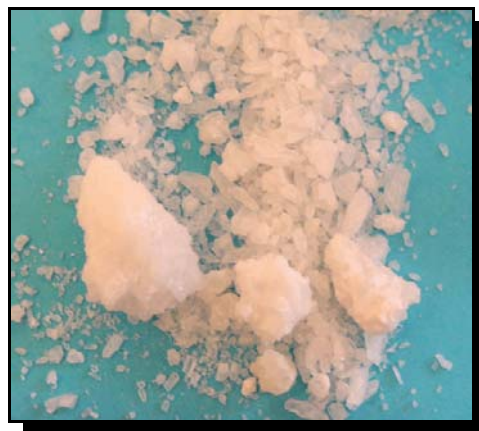


Photo 4



Photo 5

* * * * *

- INTELLIGENCE ALERT -

HEROIN/BENZYLPIPERAZINE MIXTURE IN WASHINGTON, DC

The DEA Mid-Atlantic Laboratory (Largo, Maryland) recently received five clear ziplock bags of white powder, also containing small brown particles, suspected heroin (no photo). The exhibits (typical of street-level heroin samples) were seized in Washington, DC by the Metropolitan Police Department (no further details). Analysis of the powder (total net mass 0.30 grams) by GC/FID, GC/MS, ¹H-NMR, and TLC confirmed 4.0 percent heroin (calculated as the hydrochloride), adulterated with N-benzylpiperazine (BZP), caffeine, procaine, and quinine. The BZP was not formally quantitated, but was approximately 1 percent. This is the first submission of a heroin/BZP mixture to the Mid-Atlantic Laboratory.

* * * * *

- INTELLIGENCE ALERT -

***d,l*-METHAMPHETAMINE SULFATE IN BISHKEK, KYRGYZSTAN**

The DEA Special Testing and Research Laboratory (Dulles, Virginia) recently received a folded piece of paper containing a white powder, suspected methamphetamine (see Photo 6). The exhibit was taken from a 45 gram seizure made in Bishkek, Kyrgyzstan, by personnel from the Kyrgyz Drug Control Agency (no further details). Analysis of the powder (total net mass 1.3 grams) by anion precipitation testing (silver nitrate, barium chloride), GC/MS, CE, FTIR/ATR, and NMR indicated, unusually, 44.7 percent *d,l*-methamphetamine sulfate and 46.0 percent lactose. The Special Testing and Research Laboratory rarely receives submissions of methamphetamine sulfate.



Photo 6

* * * * * * * * * * * * * * * * * * * * * * * * *

SELECTED REFERENCES

[The Selected References section is a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. Abbreviated mailing address information duplicates that provided by the abstracting service. Patents and Proceedings are reported only by their *Chemical Abstracts* citation number.]

1. Babichenko S, Ivkina T, Poryvkina L, Sominsky V. **Method for on-site drug detection in illicit drug samples.** (Patent) *Chemical Abstracts* 2008;148:420837e.
2. Cioroch K, Zuba D. **Analytical approaches used for profiling of Ecstasy tablets.** *Z Zagadnien Nauk Sadowych* 2007;69:71-89. [Editor's Notes: A review of the analytical approaches used for profiling of ecstasy tablets. Contact: Instytut Ekspertyz Sadowych im. Prof. Dra Jana Sehna (no further addressing information was provided).]

3. Cotner J, Cole B, Healy J. **Quantitative comparison of common decontamination methods.** Journal of the Clandestine Laboratory Investigating Chemists Association 2008;18(1):6-10. [Editor's Notes: Presents the results of the title study (of personnel involved in clandestine laboratory raids). *JCLICA* is a law enforcement restricted publication. Contact: DEA Clandestine Laboratory Training Unit, DEA Office of Training, PO Box 1475, Quantico, VA 22134.]
4. Cox M. **Hydriodic acid mediated reduction of bromhexine.** Journal of the Clandestine Laboratory Investigating Chemists Association 2008;18(1):12-7. [Editor's Notes: Presents the title study (bromhexine is the co-ingredient in a pseudoephedrine-containing decongestant Bisolvon (not marketed in the U.S.)). *JCLICA* is a law enforcement restricted publication. Contact: Forensic Science SA, 21 Divett Place, Adelaide 5000, South Australia, Australia.]
5. Coxon A. **The cost of "P-Lab" callouts.** Journal of the Clandestine Laboratory Investigating Chemists Association 2008;18(1):10-1. [Editor's Notes: An overview of the various costs associated with the cleanup of a clandestine methamphetamine laboratory near Wellsford, New Zealand (that had exploded during operation). *JCLICA* is a law enforcement restricted publication. Contact: Institute of Environmental Science and Research Limited, Private Bag 92 021, Auckland, New Zealand.]
6. Coxon A, McLeay N, Ranaweera N. **Development of scene examination software for clandestine drug laboratory scenes.** Journal of the Clandestine Laboratory Investigating Chemists Association 2008;18(1):23-7. [Editor's Notes: The system is designed for use on-site, and can record both scene and exhibit information. Various macros automatically generate the wide variety of forms needed to process the site, thereby minimizing transcription errors. *JCLICA* is a law enforcement restricted publication. Contact: Institute of Environmental Science and Research Limited, Private Bag 92 021, Auckland, New Zealand.]
7. Davis SF, Culshaw PN, Wermuth UD. **The production of phenyl-2-propanone from benzaldehyde via a Baeyer-Villiger reaction.** Journal of the Clandestine Laboratory Investigating Chemists Association 2008;18(1):28-31. [Editor's Notes: Presents the title study (details not provided, in accordance with *Microgram* policy). *JCLICA* is a law enforcement restricted publication. Contact: Forensic Chemistry, Queensland and Health Scientific Services, 39 Kessels Rd., Coopers Plains, QLD 4108, Australia.]
8. Dujourdy L, Dufey V, Besacier F, Miano N, Marquis R, Lock E, Aalberg L, Dieckmann S, Zrcek F, Bozenko Jr. JS. **Drug intelligence based on organic impurities in illicit MA samples.** Forensic Science International 2008;177(2-3):153-161. [Editor's Notes: One of the main objectives of the "Collaborative Harmonisation of Methods for Profiling of Amphetamine Type Stimulants" (CHAMP) project included the harmonisation of GC/MS analyses for organic impurities found in illicit methamphetamine (MA) samples. Statistical analysis provided a selection of pertinent variables among 43 organic impurities identified in the chromatograms. Correlation coefficients were used as a discrimination tool between populations of linked samples (from the same seizure) and unlinked samples (from different seizures). The profiling method proved to be useful for the characterization of samples from different seizures, and for determination of synthetic routes. Contact: Laboratoire Police Scientifique de Lyon, 31 Avenue Franklin Roosevelt, 69134 Ecully, France.]
9. Dussya FE, Berchtold C, Briellmann TA, Lang C, Steiger R, Bovens M. **Validation of an ion mobility spectrometry (IMS) method for the detection of heroin and cocaine on incriminated material.** Forensic Science International 2008;177(2-3):105-111. [Editor's

Notes: The title study is presented. The limits of detection were 250 ng cocaine and 1000 ng heroin. Contact: Institute of Legal Medicine, Pestalozzistrasse 22, CH-4056 Basel, Switzerland.]

10. Janowska E, Adamowicz P, Chudzikiewicz E, Lechowicz W. **Clonazepam - A drug use for medical and criminal purposes.** *Z Zagadnien Nauk Sadowych* 2007;71:297-302. [Editor's Notes: An overview of the abuse of clonazepam in Poland. Contact: Institute of Forensic Research, Krakow, Pol. (no street address was provided).]
11. Kamb V. **Analytical profile of Lisdexamfetamine dimesylate (Vyvanse™).** *Journal of the Clandestine Laboratory Investigating Chemists Association* 2008;18(2):3-6. [Editor's Notes: Presents the title study (Lisdexamfetamine dimesylate is a new, slow release pro-drug for amphetamine, intended for treatment of ADHD). *JCLICA* is a law enforcement restricted publication. Contact: Johnson County Crime Lab, Mission, KS 66202.]
12. Locicero S, Esseiva P, Hayoz P, Dujourdy L, Besacier F, Margot P. **Cocaine profiling for strategic intelligence, a cross-border project between France and Switzerland: Part II. Validation of the statistical methodology for the profiling of cocaine.** *Forensic Science International* 2008;177(2-3):199-206. [Editor's Notes: Harmonization and optimization of analytical and statistical methodologies were carried out in order to provide drug intelligence for cocaine seizures. Part I dealt with the optimization of the analytical method and its robustness. Part II investigated statistical methodologies that provide reliable comparison of cocaine seizures analyzed on two different GC/FIDs in two different laboratories. The results indicate that centralization of the analyses in a single laboratory is not a required condition to compare samples seized in different countries. This allows collaboration, but also jurisdictional control over data. Contact: Institut de Police Scientifique, Ecole des Sciences Criminelles, Université de Lausanne, BCH, 1015 Lausanne-Dorigny, Switzerland.]
13. Martinez FS, Roesch DM, Jacobs JL. **Isolation of methamphetamine from 1-(1',4'-cyclohexadienyl)-2-methylaminopropane (CMP) using potassium permanganate.** *Journal of the Clandestine Laboratory Investigating Chemists Association* 2008;18(1):18-22. [Editor's Notes: Preliminary treatment/cleanup of methamphetamine contaminated with CMP with potassium permanganate gives "clean" methamphetamine for FTIR analysis. *JCLICA* is a law enforcement restricted publication. Contact: Drug Enforcement Administration, Southwest Laboratory, 2815 Scott St., Vista, CA 92081.]
14. Person EC, Heegel RA, Knops LA, Northrop DM. **Phosphorus-containing reducing agents: A review of their chemistry and use in the manufacture of methamphetamine and the significance of observed phosphate, phosphite, and hypophosphite in clandestine laboratory casework.** *Journal of the Clandestine Laboratory Investigating Chemists Association* 2008;18(2):7-44. [Editor's Notes: Presents the title study (details not provided, in accordance with *Microgram* policy). *JCLICA* is a law enforcement restricted publication. Contact: Department of Chemistry, California State University - Fresno, 2555 East San Ramon Avenue, SB 70, Fresno, CA 93740.]
15. Savopolos JA, Person EC. **Date rape drugs and children's toys.** *Journal of the Clandestine Laboratory Investigating Chemists Association* 2008;18(1):4-6. [Editor's Notes: Discussed the recall of a children's product that was determined to contain 1,4-butanediol instead of the listed (and intended) ingredient 1,5-pentanediol. *JCLICA* is a law enforcement restricted publication. Contact: California DOJ BFS Fresno Regional Laboratory, 5311 N. Woodrow, Fresno, CA 93740.]

16. Stanaszek R, Zuba D. **A comparison of developed and validated chromatographic methods (HPLC, GC-MS) for determination of delta-9-tetrahydrocannabinol (Δ^9 -THC) and delta-9-tetrahydrocannabinolic acid (Δ^9 -THCA-A) in hemp.** *Z Zagadnien Nauk Sadowych* 2007;71:313-22. [Editor's Notes: The correlation between the two techniques was good ($r = 0.99$). Contact: Institute of Forensic Research, Krakow, Pol. (no street address was provided).]
17. Xing H, Ma G, Zhang C, Bai Y. **Application of chemometrics in heroin source determination.** *Jisuanji Yu Yingyong Huaxue* 2008;25(4):437-40. [Editor's Notes: A review and overview. This article is written in Chinese. Contact: Institute of Forensic Science, Beijing 100038, Peop. Rep. China.]
18. Zaitso K, Katagi M, Kamata H, Kamata T, Shima N, Miki A, Iwamura T, Tsuchihashi H. **Discrimination and identification of the six aromatic positional isomers of trimethoxyamphetamine (TMA) by gas chromatography-mass spectrometry (GC-MS).** *Journal of Mass Spectrometry* 2008;43(4):528-34. [Editor's Notes: A GC/MS method was developed for analysis of the six aromatic positional isomers of trimethoxyamphetamine (TMA). GC separation of all six isomers was achieved using a DB-5 MS capillary column (30 m x 0.32 mm i.d.) in less than 15 min. However, the mass spectra of the nonderivatized TMAs (except 2,4,6-TMA) were insufficient for unambiguous identification. In contrast, the mass spectra of the TFA derivatives of the six TMAs exhibited fragments with significant intensity differences, which allowed the unequivocal identifications. Contact: Forensic Science Laboratory, Osaka Prefectural Police Headquarters, 1-3-18, Hommachi, Chuo-ku, Osaka 541-0053, Japan.]
19. Zuba D. **Medicines containing ephedrine and pseudoephedrine as a source of methcathinone.** *Z Zagadnien Nauk Sadowych* 2007;71:323-33. [Editor's Notes: A review and feasibility study. Contact: Instytut Ekspertyz Sadowych im. Prof. Dra Jana Sehna (no further addressing information was provided).]

Additional References of Possible Interest:

1. Bowen A. **Putting chemistry in context: The role of the light microscope in non-routine analysis.** *Microscope* 2007;55(4):147-61. [Editor's Notes: An overview. Contact: Stoney Forensic, Inc., Chicago, IL 60616 (no street address was provided).]
2. Cowan DA. **Drug testing.** *Essays in Biochemistry* 2008;44:139-48. [Editor's Notes: An overview; focus is on antidoping. Contact: Drug Control Centre, Department of Forensic Science and Drug Monitoring, Pharmaceutical Science Division, King's College London, 150 Stamford Street, London SE1 9NH, U.K.]
3. Hadeif Y, Kaloustian J, Portugal H, Nicolay A. **Multivariate optimization of a derivatisation procedure for the simultaneous determination of nine anabolic steroids by gas chromatography coupled with mass spectrometry.** *Journal of Chromatography A* 2008;1190(1-2):278-85. [Editor's Notes: The title steroids were androsterone, nandrolone, estradiol, testosterone propionate, nandrolone-17-propionate, dydrogesterone, testosterone, epitestosterone, and boldenone. The derivatization reagent was a mixture of MSTFA, ammonium iodide, and 2-mercaptoethanol. The application was not stated in the abstract, but appears to be toxicological or anti-doping. Contact: Laboratoire de Chimie Analytique, Departement de Pharmacie, Faculte de Medecine, Universite Badje Mokhtar, B.P. 205, Annaba 23000, Algeria.]

4. Hakki EE; Kayis SA, Pinarkara E, Sag A. **Inter simple sequence repeats separate efficiently hemp from marijuana (*Cannabis sativa* L.)** Electronic Journal of Biotechnology 2007;10(4):None. [Editor's Notes: Psychoactive type Cannabis samples from 23 different locations in Turkey, hemp type Cannabis from 9 different known and 1 unknown "accessions" were analyzed. Inter Simple Sequence Repeats were employed for analysis of single plant material (SET-1) and bulked samples of same (SET-2). Data was analysed via cluster analysis and principal coordinate analysis (PCoA). PCoA analyses on the two sets were able to discriminate the psychoactive from the fiber type plants. However, discrimination of the plants was not clear via unweighted pair-group method using arithmetic average (UPGMA) dendrogram in SET-1, while they were clearly separated in SET-2. Hemp type accessions showed high levels of variation compared to drug type Cannabis, both in SET-1 and SET-2. Contact: Department of Field Crops, Faculty of Agriculture, Selcuk University, 42079, Konya-Turkey.]

5. Huck CW, Huck-Pezzei V, Bakry R, Bachmann S, Najam-ul-Haq M, Rainer M, Bonn GK. **Capillary electrophoresis coupled to mass spectrometry for forensic analysis.** Open Chemical Engineering Journal 2007;1(1):30-43. [Editor's Notes: A review. "Compounds with amine containing side chains, compounds with N-containing saturated ring structures, other heterocycles and peptides" are listed (but not identified) in the abstract. The focus is unclear. Contact: Institute of Analytical Chemistry and Radiochemistry, Leopold-Franzens University, Innrain 52a, 6020 Innsbruck, Austria.]

6. Zaitso K, Katagi M, Kamata T, Kamata H, Shima N, Tsuchihashi H, Hayashi T, Kuroki H, Matoba R. **Determination of a newly encountered designer drug "p-methoxyethyl-amphetamine" and its metabolites in human urine and blood.** Forensic Science International 2008;177(1):77-84. [Editor's Notes: Analyses were conducted by GC/MS. The study included isomeric discrimination of PMEA and its positional isomers following trifluoroacetylation. The focus is toxicological. Contact: Forensic Science Laboratory, Osaka Prefectural Police Headquarters, Japan.]

* * * * *

SCIENTIFIC MEETINGS

Title: Fall 2008 SAFS Meeting (Second Posting)
Sponsoring Organization: Southern Association of Forensic Scientists
Inclusive Dates: September 22-26, 2008
Location: Sam's Town Hotel and Casino (Shreveport, LA)
Contact Information: Randall Robillard (318/227-2889 or rrobillard-at-nlcl.org)
Website: www.southernforensic.org

* * * * *

Title: 18th Annual CLIC Meeting (Second Posting)
Sponsoring Organization: Clandestine Laboratory Investigating Chemists Association
Inclusive Dates: September 2-6, 2008 (Natural Products Workshop only on September 2)
Location: La Mansion del Rio Hotel on the Riverwalk (San Antonio, TX)
Contact Information: P. Smith (p1947s-at-hotmail.com)
Website: None

* * * * *

(Meetings Continued on Next Page)

Title: 30th Annual SWAFS Meeting (Third Bimonthly Posting)
Sponsoring Organization: Southwestern Association of Forensic Scientists
Inclusive Dates: September 22-26, 2008
Location: The Peabody (Little Rock, Arkansas)
Contact Information: Nick Dawson (501/683-6189 or [nick.dawson -at- crimelab.arkansas.gov](mailto:nick.dawson-at-crimelab.arkansas.gov))
Website: www.swafs.us

* * * * *

THE JOURNAL/TEXTBOOK COLLECTION EXCHANGE

The Journal/Textbook Collection Exchange is a service intended to facilitate the transfer of unwanted journals and textbooks to forensic libraries or other *Microgram* subscribers. At present, this service is offered once a quarter (in January, April, July, and October). The current donations are listed below. The offers are First Come/First Serve (except **libraries have preference**). There are no charges to the requestor. Please provide a full mailing address in the request. **Important!:** Do not provide an address that irradiates mail!

Federal Code and Rules - 2007 Edition

Journal of Forensic Sciences:

1992 - All

1993 - January (#1, 2 Copies), March (#2), July (#4), September (#5), and November (#6)

1994 - March (#2), May (#3), and July (#4)

2005 - May (#3) and July (#4)

All subscribers are encouraged to donate surplus or unwanted items/collections. Reference texts and long runs of forensic/analytical journals are of particular interest; however, even single issues are worthwhile, and may fill a hole in an existing collection. If interested, please consult the *Microgram* website or contact the *Microgram* Editor for further instructions.

The next offering of journals and textbooks will be in the October 2008 issue of *Microgram Bulletin*.

* * * * *

THE DEA FY 2008 STATE AND LOCAL FORENSIC CHEMISTS SEMINAR SCHEDULE

The remaining FY 2008 schedule for the State and Local Forensic Chemists Seminar is as follows:

September 8 - 12

The school is open only to forensic chemists working for law enforcement agencies, and is intended for chemists who have completed their agency's internal training program and have also been working on the bench for at least one year. There is no tuition charge. The course is held at the Hyatt Place Dulles North Hotel in Sterling, Virginia (near the Washington/Dulles International Airport). A copy of the application form is reproduced on the last page of the August 2004 issue of *Microgram Bulletin*. (See: <http://www.dea.gov/programs/forensicsci/microgram/mg0804/aug04.pdf>) Completed applications should be mailed to the Special Testing and Research Laboratory (Attention: J. Head) at: 22624 Dulles Summit Court, Dulles, VA 20166. For additional information, call 703/668-3349.