

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.

- MAY 2007 -

- INTELLIGENCE ALERT -

INSOLE-SHAPED HEROIN BRICKS IN OKLAHOMA CITY

The Oklahoma State Bureau of Investigation Northeast Regional Laboratory (Tahlequah) recently received two pairs of shoe-sole shaped bricks containing a compressed white powder, suspected heroin (see Photo 1). The exhibits were seized from an individual in Oklahoma City by the Oklahoma City Police, pursuant to a consent search. The bricks had been inserted in place of the insoles in the suspect's shoes. Each brick was wrapped with layers of brown tape, plastic, and grease, then covered with carbon paper. Analysis of the powder (total net mass 2195 grams) by GC and GC/MS confirmed heroin (quantitation not performed). Since this initial submission, additional exhibits totalling 4.1 kilograms have been received by the laboratory.



Photo 1

[Editor's Notes: According to the officer in this case, these soles were first noted around the first

of the year, and are still being encountered. The couriers are low-level “mules” believed to be in transit from the southwest border to New York City, are usually travelling by bus, and are wearing a variety of oversized footwear.]

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- INTELLIGENCE ALERT -

ECSTASY COMBINATION TABLETS (CONTAINING KETAMINE, PROCAINE, AND MDMA) IN HUNTINGTON BEACH, CALIFORNIA

The Huntington Beach Police Department Crime Laboratory (California) recently received 12 round blue tablets with a “7” logo, suspected “Ecstasy” (see Photo 2). The exhibits were seized in Huntington Beach pursuant to a traffic stop for suspected impaired driving (marijuana was also seized). The tablets were 8 millimeters in diameter by 4.5 millimeters thick, and weighed 280 milligrams each. Analysis by color testing, FTIR/ATR, and GC/MS indicated ketamine, procaine, and MDMA in an approximate 53:37:10 ratio (not formally quantitated). This was the first known submission of Ecstasy tablets containing this particular combination to the laboratory.



Photo 2

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- INTELLIGENCE ALERT -

ECSTASY COMBINATION TABLETS (CONTAINING MDMA AND PROCAINE) IN WYOMING COUNTY, NEW YORK

The Monroe County Public Safety Laboratory (Rochester, New York) recently received four round, orange tablets with a “claw hammer” logo on one face and half-scored on the reverse face, apparent Ecstasy (see Photo 3). The tablets were seized in Wyoming County, New York (details sensitive). The tablets were 9.2 millimeters in diameter by 5 millimeters thick, and weighed approximately 325 milligrams each. Unlike almost all purported “Ecstasy” tablets submitted to the laboratory, which are barrel shaped with flat tops and bottoms, these were biconvex. Analysis by nitroprusside, Marquis, and GC/MS confirmed MDMA, adulterated with procaine (not quantitated, but with similar abundances based on their TICs). This was the first submission of Ecstasy tablets with this logo to the laboratory.



Photo 3

- INTELLIGENCE ALERT -

COCAINE IN A HARD RUBBER-LIKE MATRIX IN TULUA, COLOMBIA

The DEA Special Testing and Research Laboratory (Dulles, Virginia) recently received a Ziploc bag imprinted with a puzzle piece and containing a piece of hard, black rubber-like material, suspected to contain heroin (see Photo 4). The exhibit (total net mass 9.2 grams) was a small exemplar taken from an 85 kilogram shipment of this material that was seized in Tulua, Colombia by the Colombian National Police Heroin Task Force. Analysis of chloroform and 9:1 chloroform/methanol extracts by GC/FID, GC/MS and FTIR/ATR, however, indicated not heroin but rather 47.6 percent cocaine hydrochloride. Further analysis by GC/FID, GC/ECD and SHS-GC/MS indicated that the cocaine was probably produced from *Erythroxylum novogranatense* var. *truxillense*, a species of coca that is only cultivated in Colombia. The composition of the rubber-like matrix was not determined, and the method for incorporating the cocaine in this matrix is unknown. The Special Testing and Research Laboratory has previously received controlled substances in various synthetic matrices, but this was the first submission of this specific type. It was not reported what the material was supposed to imitate.



Photo 4

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- INTELLIGENCE ALERT -

COCAINE SMUGGLED IN A WOODEN STAND AT DULLES INTERNATIONAL AIRPORT, VIRGINIA

The DEA Mid-Atlantic Laboratory (Largo, Maryland) recently received a decorative wooden stand containing four plastic-wrapped packages of compressed white powder in a hollowed-out section, that field-tested positive for cocaine (see Photo 5; note that stand was approximately 8 x 8 x 16 inches). The exhibit originated in Mexico City and was seized at the Dulles International Airport by U.S. Customs and Border Protection personnel (details sensitive). Analysis of the white powder (total net mass 3.975 kilograms) with GC, GC/MS, and FTIR confirmed 74.4 percent cocaine hydrochloride. Although the Mid-Atlantic Laboratory routinely receives controlled substances secreted in wooden consumer items, this is the first known submission utilizing a stand of this type.



Photo 5

- INTELLIGENCE ALERT -

**COCAINE MIMIC BRICKS (CONTAINING LIDOCAINE AND MANNITOL)
IN CHICAGO, ILLINOIS**

The DEA North Central Laboratory (Chicago, Illinois) recently received 98 bricks of two different types, all containing white powder, suspected cocaine. The physical appearance of 93 bricks were typical of kilogram cocaine bricks. However, the remaining 5 bricks were larger, more loosely packed, more spherically shaped, and minimally packaged in plastic bags and brown tape (see Photo 6). The exhibits were seized by DEA agents in Chicago pursuant to a consent search (no further details). Analysis of the powder in the lot of 93 bricks (total net mass 93.3 kilograms) by GC/MS, IR and GC/FID confirmed 83 percent cocaine hydrochloride, adulterated with hydroxyzine. However, analysis of the powder in the lot of 5 bricks (total net mass approximately 10.5 kilograms) by the same techniques indicated only lidocaine and mannitol, in about a 1:3 ratio. This was the first submission of lidocaine/mannitol “bricks” to the North Central Laboratory in recent memory.



Photo 6

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- INTELLIGENCE ALERT -

**UNUSUAL APPEARING ICE METHAMPHETAMINE
IN PITTSBURG, CALIFORNIA**

The DEA Western Laboratory (San Francisco, California) recently received a seizure of 20 plastic bags, each containing very large, white crystals, suspected “Ice” methamphetamine (see Photo 7). The exhibits were seized in Pittsburg, California by DEA and ATF agents as a result of a buy/bust operation. Unusually, the crystals (total net mass 9.023 kilograms) averaged about 3 inches long. Analysis by Marquis, FTIR, and GC/FID confirmed 96 percent d-methamphetamine hydrochloride. This is the first such submission to the DEA Western Laboratory.

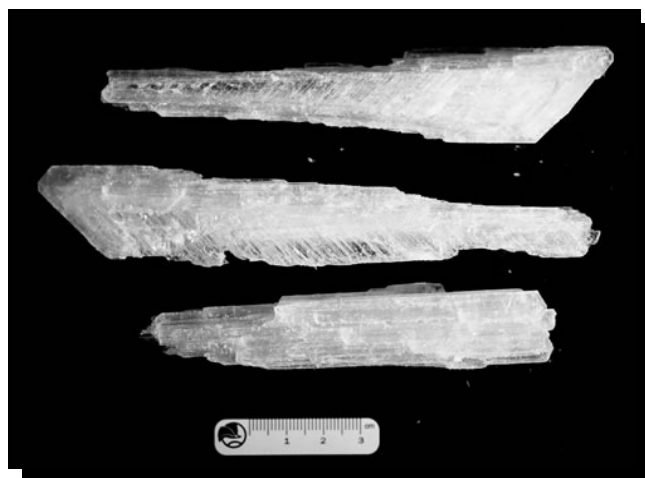


Photo 7

SELECTED REFERENCES

[Selected references are 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. Barker WD, Antia U. **A study of the use of Ephedra in the manufacture of methamphetamine.** *Forensic Science International* 2007;166(2-3):102. [Editor's Notes: Ephedra was reduced by four different methods (not specified in the abstract), and the products, byproducts, and intermediates of each route were identified. Contact: Institute of Environmental Science and Research Ltd (ESR), Mt Albert Research Centre, Hampstead Road, Private Bag, Auckland 92021, N.Z.]
2. Culshaw PN. **Electrochemical reduction of pseudoephedrine to methylamphetamine.** *Journal of the Clandestine Laboratory Investigating Chemists Association* 2007;17(2):5. [Editor's Notes: Presents the title study (details withheld in accordance with Microgram policy). JCLICA is law enforcement restricted. Contact: Forensic Chemistry, Queensland Health Scientific Services, 39 Kessels Road, Coopers Plains, QLD 4108, Australia.]
3. Fierro I, Deban L, Pardo R, Tascon M, Vazquez D. **Determination of mercury and arsenic in ecstasy tablets by electrochemical methods.** *Forensic Toxicology* 2006;24(2):70. [Editor's Notes: Mercury was determined with Differential Pulse Anodic Stripping Voltametry with a rotating gold electrode, and arsenic with Cathodic Stripping Voltametry in the Differential Pulse Mode with a hanging mercury drop electrode. Nine samples (all seized in Spain) were analyzed. The techniques were felt to be potentially useful for impurity profiling. Contact: Departamento de Quimica Analitica, Facultad de Ciencias, Universidad de Valladolid, Valladolid 470005, Spain.]
4. Kato N, Kojima T, Yoshiyagawa S, Ohta H, Toriba A, Nishimura H, Hayakawa K. **Rapid and sensitive determination of tryptophan, serotonin, and psychoactive tryptamines by thin-layer chromatography/fluorescence detection.** *Journal of Chromatography, A* 2007;1145(1-2):229. [Editor's Notes: The compounds were detected by UV (365 nm) after being sprayed with various reagents; the tryptamines were not identified in the abstract. Contact: Kanagawa Prefectural Police Headquarters, Scientific Crime Laboratory, 155-1 Yamashita-cho, Naka-ku, Yokohama, Kanagawa 231-0023, Japan.]
5. Kuila DK, Lahiri SC. **Search for suitable mobile phase in TLC analysis of different drugs of forensic interest and their gas liquid chromatographic experiment.** *Journal of the Indian Chemical Society* 2007;84(1):69. [Editor's Notes: The materials/compounds that were tested included cannabis, opium, cocaine, and methaqualone. Contact: Central Forensic Science Laboratory, Kolkata 700 014, India.]
6. Mantie KG. **Marihuana "Budder."** *Journal of the Clandestine Laboratory Investigating Chemists Association* 2007;17(2):4. [Editor's Notes: Discusses seizures of the title product, which appears to be a purified, concentrated marijuana extract with a very high THC content. This material is being widely encountered concealed in mailed letters in Canada, and appears to originate in the Vancouver area. JCLICA is law enforcement restricted. Contact: Steinbach RCMP Detachment, i/c Sprague Community Office (no further addressing information was provided).]

Additional References of Possible Interest:

1. Cruces-Blanco C, Gamiz-Gracia L, Garcia-Campana AM. **Applications of capillary electrophoresis in forensic analytical chemistry.** TrAC, Trends in Analytical Chemistry 2007;26(3):215. [Editor's Notes: A review, focusing on explosives and gunshot residues. Contact: Department of Analytical Chemistry, Faculty of Sciences, University of Granada, Granada 18071, Spain.]
2. Dubois J, Wolff J-C, Warrack JK, Schoppelrei J, Lewis EN. **NIR chemical imaging for counterfeit pharmaceutical products analysis.** Spectroscopy 2007;22(2):40. [Editor's Notes: Presents the title study. The technique allows for rapid screening of pharmaceutical and/or suspect products. Contact: Malvern Instruments, Analytical Imaging in Columbia, MD (zip code not provided).]
3. Forrester MB. **Oxycodone abuse in Texas, 1998-2004.** Journal of Toxicology and Environmental Health, Part A 2007;70(6):534. [Editor's Notes: An overview, based on calls to Texas poison control centers. Contact: Texas Department of State Health Services, Austin, TX (zip code not provided).]
4. Lin D-L, Liu H-C, Yin H-L. **Case report: Paramethoxymethamphetamine (PMMA) deaths in Taiwan.** Journal of Analytical Toxicology 2007;31(2):109. [Editor's Notes: A review of 8 cases. Contact: Institute of Forensic Medicine, Ministry of Justice, Taipei, Taiwan.]
5. Lund HS, Hemmersbach P. **Nandralone, a drug of abuse with many aspects.** Kjemi 2006;66(3):3. [Editor's Notes: A review, focusing on biochemistry and physiology. This article is written in Norwegian. Contact: Horman Laboratoriet, Aker Universitetssykehus, Uio, Norway.]
6. Maurin JK, Plucinski F, Mazurek AP, Fijalek Z. **The usefulness of simple X-ray powder diffraction analysis for counterfeit control - The Viagra example.** Journal of Pharmaceutical and Biomedical Analysis 2007;43(4):1514. [Editor's Notes: The technique allows for rapid screening of pharmaceutical and/or suspect tablets. Contact: The National Drug Institute, Chelmska 30/34, Warsaw 00-725, Pol.]
7. Porter SEG, Stoll DR, Paek C, Rutan SC, Carr PW. **Fast gradient elution reversed-phase liquid chromatography with diode-array detection as a high throughput screening method for drugs of abuse.** Journal of Chromatography, A 2006;1137(2):163. [Editor's Notes: Part II of: Stoll DR, Paek C, Carr PW. **Fast gradient elution reversed-phase high-performance liquid chromatography with diode-array detection as a high-throughput screening method for drugs of abuse.** Journal of Chromatography, A 2006;1137(2):153. This article presents the use of the chemometric method of target factor analysis to the chromatograms. Contact: Department of Chemistry, Virginia Commonwealth University, Richmond, VA 23294.]
8. Stoll DR, Paek C, Carr PW. **Fast gradient elution reversed-phase high-performance liquid chromatography with diode-array detection as a high-throughput screening method for drugs of abuse.** Journal of Chromatography, A 2006;1137(2):153. [Editor's Notes: Focus is biological samples. Contact: Department of Chemistry, Smith and Kolthoff Halls, University of Minnesota, Minneapolis, MN 55455.]
9. Van Nimmen NFJ, Poels KLC, Veulemans HAF. **Identification of exposure pathways for opioid narcotic analgesics in pharmaceutical production workers.** Annals of Occupational

Hygiene 2006;50(7):665. [Editor's Notes: Focus was on exposure to fentanyl. Contact: Laboratory for Occupational Hygiene and Toxicology, Department of Occupational, Environmental, and Insurance Medicine, Katholieke Universiteit Leuven, B-3000 Louvain, Belg.]

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SCIENTIFIC MEETINGS

1. Title: 33rd Annual NEAFS Meeting (First Bimonthly Posting)
Sponsoring Organization: Northeastern Association of Forensic Sciences
Inclusive Dates: October 31 - November 3, 2007
Location: Sagamore Resort (Bolton Landing, New York)
Contact Information: Adrian S. Krawczeniuk (Adrian.S.Krawczeniuk-at-usdoj.gov; 212/620-4923)
Website: www.neafs.org

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EMPLOYMENT OPPORTUNITIES

Position: Forensic Scientist (Chemist) (Second Posting)
Location: Montana Forensic Science Division; Missoula, Montana
Salary: \$42,931.00 to \$53,664.00
Application Deadline: July 15, 2007 (Faxed applications will not be accepted)

Duties and Responsibilities: Independently analyze evidence to identify controlled substances utilizing scientific testing procedures. Perform analyses of chemicals seized in clandestine laboratories to determine methods of manufacture and products produced. Identify adulterants, poisons, and discrepancies in product formulations related to product tampering investigation. Maintain accurate chain of custody records on evidence examined. Prepare written reports, including documentation of analyses performed and final conclusions. Provide expert testimony in courts of law. Experienced in maintaining scientific equipment, including quality control documentation. Provide instruction to law enforcement officers regarding evidence collection and preservation. Review casework for accuracy and adherence to standard operating procedures. The ideal applicant will also be proficient in the application of ASTM methods used in the analysis of fire debris. Performs other duties as assigned.

Qualifications: A minimum of a B.S. in Chemistry or related field with 3 years experience in a forensic laboratory specializing in the analysis of controlled substances. Additional experience in the analysis of fire debris is preferred.

Contact: Jim Hutchison
Chemical Analysis Supervisor
Montana Forensic Science Division
jhutchison-at-mt.gov
(406) 329-1114

Applications may be obtained at <http://mt.gov/statejobs/statejobs.asp>

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Sometimes the technology fails.

It all started one week before Christmas when a case was assigned to me for analysis - recovering overwritten data on a 250 Gigabyte external hard drive. I was excited because I hadn't done a complete forensic examination since I became a supervisor. I have to take an annual proficiency test, but it's not the same as a "real" case.

Upon my initial evaluation, I saw that all of the data was located in the unallocated free space on the drive. This meant that I had to carve the data out.

With the assistance of a computer forensics examiner, the header information was obtained, which included the date stamp and the video header. I proceeded to perform the forensics analysis with this valuable information. Initially, I carved the data manually. This meant that I had to hold down the Shift and Page Down keys to highlight two-megabyte segments of data, one at a time, and then export it out to a folder located on another forensic hard drive. This process sounds easy - but it wasn't, because a video clip is a huge file. I did this for 2 weeks. Trust me, it quickly became tedious, and eventually painful.

After two weeks of this, I used the software that would repair the recovered data files (that is, convert it back into the original video). This was the highlight of all the work, and the results were seemingly worth the wait: "Hey, I can see some video!" That was a good feeling.

This continued for another week, and the good feelings faded. There had to be a better way. I then tried one of the validated forensic tools that we have in the laboratory, one that would "automatically" carve out the data for me. The results were astonishing - and disappointing. The tool quickly created 49 folders, each containing 400 carved data files. No more holding down the Shift and Page Down keys! But then, the repair tool was unable to do anything with the carved files. So I used a different carving tool - same results. The tools seemed to do what they were supposed to do, but the repair software couldn't do anything with the data.

I continued carving manually for two months. And after all this time, I was amazed to find that I had recovered only a few seconds of video.

The moral of this article is sometimes the technology fails, and the conventional way is the only way that will work, even though it may take you an extraordinary amount of time to get to the final result.

Questions or comments? E-mail: [Steven.L.Carter -at- usdoj.gov](mailto:Steven.L.Carter-usdoj.gov)

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