

# Microgram

## *Bulletin*

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- FEBRUARY 2009 -

- INTELLIGENCE ALERT -

### **OXYCONTIN AND OXYCONTIN MIMIC TABLETS (ACTUALLY CONTAINING TRAMADOL, DICYCLOMINE, AND DIAZEPAM) IN TARRYTOWN, NEW YORK**

The Westchester County Forensic Lab (Valhalla, New York) recently received a submission of 11 green round tablets with two different logos, all apparent OxyContin (see Photo 1). The tablets were seized by the Tarrytown Police Department, incidental to a routine traffic stop in Tarrytown. The first group of tablets (six) were marked “OC” on one face and “80” on the opposite face, and weighed approximately 270 milligrams each. The second group of tablets (five) were more poorly marked “CDN” on one face and “80” on the opposite face, and weighed approximately 249 milligrams each. The presumptive identifications of Oxycontin (i.e., containing 80 milligrams of oxycodone) for both sets of tablets were based on the Drug Identification Bible. Analysis of the “OC/80” tablets by GC/MS confirmed oxycodone (not quantitated). Analysis of the “CDN/80” tablets by GC/MS, however, indicated not oxycodone but rather a mixture of



**Photo 1**

tramadol, dicyclomine, and diazepam (not quantitated, but in an approximate 86 : 2.5 : 1 ratio based on the based on the TIC). The “OC/80” tablets are presumed to be legitimate Oxycontin tablets, while the “CDN/80” tablets are mimics of Canadian-produced Oxycontin tablets. This was the laboratory’s first encounter with OxyContin mimic tablets.

[Editor’s Notes: Tramadol is a CNS depressant and an analgesic. Dicyclomine is an antispasmodic. Similar appearing “CDN/80” tablets were recently reported by the Canadian Border Services Agency Laboratory in Ottawa; however, those tablets contained a mixture of nitrazepam, codeine, and chlorpheniramine; see: Microgram Bulletin 2008;41(9):77.]

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**- INTELLIGENCE ALERT -**

**ECSTASY MIMIC TABLETS (ACTUALLY CONTAINING N-BENZYL-PIPERAZINE, 1,3-TRIFLUOROMETHYLPHENYLPIPERAZINE, 1,4-DIBENZYLPIPERAZINE, AND CAFFEINE) IN BOISE, IDAHO**

The Idaho State Police Forensics Laboratory in Meridian recently received four submissions of six types of tablets, suspected Ecstasy (see Photos 2 - 7). The tablets were acquired or seized in Boise by the Boise Area Narcotics Drug Interdiction Taskforce. The first two submissions (totalling 25 yellow Bart Simpsons and 25 blue “Autobot” Transformers) were acquired during undercover purchases. The third submission (25 each of green tablets with an Infiniti logo, orange tablets with a Batman bat logo, purple tablets with the JL Audio logo, and blue tablets with a dolphin logo); were also acquired during another undercover purchase from the same suspect (note that the four tablets in Photos 4 - 7 are all approximately the same size). The fourth submission consisted of 300 more of the same type



**Photo 2**



**Photo 3**



**Photo 4**



**Photo 5**



**Photo 6**



**Photo 7**

tablets acquired in the third undercover purchase (43 green Infinitis, 52 orange Batman bats, 90 purple JL Audios, and 115 blue dolphins), that were seized pursuant to a consent search of the suspect's room in a local motel. Analysis of the Bart Simpson and "Autobot" Transformer tablets by color testing (Marquis, secondary amine, and cobalt thiocyanate) and GC/MS, however, indicated not MDMA but rather a 1 : 3 : 1 mixture of N-benzylpiperazine (BZP), 1,3-trifluoromethylphenylpiperazine (TFMPP), and 1,4-dibenzylpiperazine, adulterated with caffeine. Analysis of the Infiniti, bat, JL Audio, and dolphin tablets (same techniques) indicated a 3 : 2 mixture of BZP and TFMPP (no 1,4-dibenzylpiperazine), again adulterated with caffeine. The various components were not formally quantitated, but were present at a fairly high loading based on the TICs. The Idaho State Police Forensic laboratories have received several similar submissions over the past few months.

[Editor's Notes: "Autobots" are characters in the fictional "Transformers" universe. The Portland Metro Forensic Laboratory of the Oregon State Police recently reported a similar seizure including different color Bart Simpson and "Autobot" tablets, that were both found to contain a mixture of BZP and TFMPP; see: *Microgram Bulletin* 2008;41(12):105. Similar "Decepticon" Transformer tablets (also a different color) were also reported by the Ohio Bureau of Criminal Identification and Investigation Laboratory in Bowling Green, and were found to contain a mixture of BZP, TFMPP, and caffeine; see: *Microgram Bulletin* 2009;42(1):3. In contrast to most Ecstasy and Ecstasy mimic tablets, these Bart Simpson and "Transformers"-type tablets have been very detailed and well-pressed, and more resembled small candies or children's chewable vitamins; based on reports to date to *Microgram*, however, none appear to actually contain any MDMA, but rather only mixtures of piperazines.]

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### - INTELLIGENCE ALERT -

#### RECORD SEIZURE OF PHENCYCLIDINE IN JACKSON, MISSISSIPPI

The Mississippi Crime Laboratory in Jackson recently received two plastic bottles containing a combined total of 875 milliliters of a straw-colored liquid with a strong ether-like odor, that field tested positive for phencyclidine (PCP). The exhibits (see Photo 8) had been mailed to an abandoned building in Jackson, and were seized by Mississippi Bureau of Narcotics agents. The caps on both bottles had been further sealed with electrical tape. Preliminary analysis by FTIR confirmed diethyl ether. Further analysis by GC/MS confirmed PCP (not formally quantitated, but a relatively high loading based on the TIC). This was the first submission of PCP to the Mississippi Crime Laboratory system since 2003, and was also the largest ever such submission.



Photo 8 (in an Evidence Envelope)



**- INTELLIGENCE ALERT -**

**COCAINE SMUGGLED IN “CHURROS” (“SPANISH DOUGHNUTS”)  
AT JFK INTERNATIONAL AIRPORT**

The DEA Northeast Laboratory (New York, New York) recently received a submission of 192 “Churros,” each containing a plastic-wrapped cylinder of an off-white powder, suspected cocaine (see Photo 9). The exhibits were seized by Immigration and Customs Enforcement personnel from mail arriving at JFK International Airport (New York) on a flight from Guyana. Each individual “Churro” was approximately 3.0 inches long by 0.75 inch in diameter. Analysis of the powder (total net mass 1.15 kilograms) by GC/FID, GC/MS, and FTIR/ATR confirmed 82.2% cocaine hydrochloride, adulterated with levamisole (not quantitated). This was the first submission of “Churros” (or of any type of fried food) being used as a concealment technique to the Northeast Laboratory.



**Photo 9**

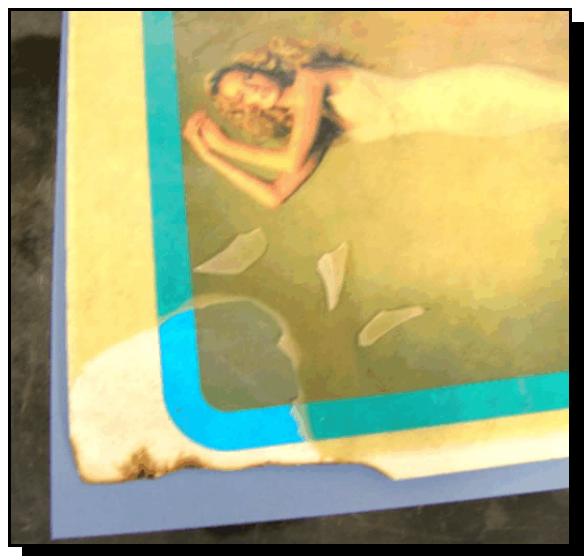
[Editor’s Notes: “Churros” (sometimes called “Spanish doughnuts”) are fried-dough pastries.]

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**- INTELLIGENCE ALERT -**

**PROTECTIVE PLASTIC COVER (CONTAINING COCAINE) IN COLOMBIA**

The DEA Southeast Laboratory (Miami, Florida) recently received a magazine page coated in a thick plastic “protective” covering (see Photo 10); the plastic was suspected to contain cocaine. The exhibit was provided to DEA special agents in Bogota, Colombia (details sensitive). Analysis of the plastic (thickness approximately 1 millimeter, total net mass 14.2 grams) by GC/FID, GC/MS, and FTIR/ATR confirmed 21.5 % cocaine base (equalling 3.1 grams of cocaine base) adulterated with levamisole. Intelligence provided to the DEA special agents indicates that this plastic is being used to coat calendars, photos, and similar items, and is also being added into automobile paints. This is the first submission of this type exhibit to the Southeast Laboratory.



**Photo 10**

**- INTELLIGENCE ALERT -**

**COCAINE BRICKS WRAPPED IN LEAD SHEETING IN PECOS, TEXAS**

The DEA South Central Laboratory (Dallas, Texas) recently received eight bricks of compressed white powder, suspected cocaine. The exhibits were seized by a Texas Department of Public Safety Trooper incidental to a routine traffic stop in Pecos. Four bricks were half-kilogram sized, with typical black tape and clear plastic wrappings. The other four bricks were standard kilogram sized, also wrapped in black tape - but quite heavy. Upon removal of the black tape, the next layer was found to be folded lead sheeting (see Photo 11). Upon unfolding, the cocaine bricks were further wrapped in clear plastic. Analysis of the powder (total net mass for all eight bricks 5.99 kilograms) by FTIR/ATR, GC/MS, GC/FID, and LC/MS confirmed 88.6% cocaine hydrochloride. This is believed to be the first ever submission of lead wrapped cocaine bricks to the South Central Laboratory. The bricks were not actually encased (sealed) in lead; therefore, the reasoning behind this concealment technique is unclear.



**Photo 11**

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**- INTELLIGENCE ALERT -**

**MARIJUANA SPRINKLED WITH MORPHINE SULFATE POWDER IN VISTA, CALIFORNIA**

The DEA Southwest Laboratory (Vista, California) recently received a small glass screw-top jar containing 1.1 grams of plant material, apparent marijuana. The exhibit was seized by DEA special agents in Vista from the residence of a physician who was under investigation for the illegal prescribing and dispensing of controlled substances. Routine analysis of the plant material confirmed marijuana, but closer examination showed it had also been sprinkled with a tan powder (see Photo 12). Analysis of the powder by color testing (Marquis - positive), GC/MS, and FTIR/ATR indicated morphine sulfate (weight determination and quantitation not possible). No other opiates were detected; therefore, it is presumed that the powder was pharmaceutical (i.e., high purity) morphine sulfate. This was the first ever such submission to the Southwest Laboratory.



**Photo 12**

## 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. Arndt T. **Tilidin. Opioid analgesics with abuse and dependency potential.** MTA Dialog 2008;9(9):754. [Editor's Notes: A review of the analysis of Tilidine (Ethyl 2-(N,N-dimethyl-amino)-1-phenylcyclohex-3-enecarboxylate). This article is written in German. Contact: Bioscientia GmbH, D-55218 Ingelheim, Germany.]
2. Bonadio F, Margot P, Delemont O, Esseiva P. **Headspace solid-phase microextraction (HS-SPME) and liquid-liquid extraction (LLE): Comparison of the performance in classification of ecstasy tablets (Part 2).** Forensic Science International 2008;182(1-3):52-56. [Editor's Notes: Presents the title study. 62 different seizures were analyzed using both extraction techniques, followed by GC/MS. The results emphasize the use of HS-SPME as an effective alternative to LLE, with advantages such as sample preparation and a solvent-free process. Contact: Ecole des Sciences Criminelles, Institut de Police Scientifique, University of Lausanne, Batochime, Lausanne-Dorigny CH-1015, Switz.]
3. El-Naby EH. **Polymeric membrane sensors for the selective determination of dextromethorphan in pharmaceutical preparations.** Analytical Sciences 2008;24(11):1409-1414. [Editor's Notes: Presents the construction and electrochemical response characteristics of poly(vinyl chloride) matrix ion-selective electrodes for dextromethorphan hydrobromide. The LODs ranged from  $5.0 \times 10^{-5}$  -  $1.0 \times 10^{-3}$  M in pure and dosage forms by direct potentiometry and standard addition methods. Contact: Narcotic Department, National Center for Social and Criminal Research, Cairo 11561, Egypt.]
4. Gheorghe M, Balalau D, Ilie M, Baconi D-L, Ciobanu A-M. **Component analysis of illicit heroin samples by GC-MS method.** Farmacia (Bucharest, Romania) 2008;56(5):577-582. [Editor's Notes: Presents the title study. Contact: Criminalistics Research Institute of the Romanian Police General Inspectorate, Bucharest, Rom.]
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6. Iwata YT, Kuwayama K, Tsujikawa K, Miyaguchi H, Kanamori T, Inoue H. **Evaluation method for linking methamphetamine seizures using stable carbon and nitrogen isotopic compositions: A complementary study with impurity profiling.** Rapid Communications in Mass Spectrometry 2008;22(23):3816-3822. [Editor's Notes: Presents a method for linking methamphetamine seizures using stable carbon and nitrogen isotopic ratios concurrently with GC-based impurity profiling. The linkages between the seizures from the isotope work were consistent with the linkages from the impurity profiling and investigative information. Contact: National Research Institute of Police Science 6-3-1, Kashiwanoha, Kashiwa, Chiba 277-0882, Japan.]
7. Mendoza MA, Mills DK, Lata H, Chandra S, ElSohly MA, Almirall JR. **Genetic individualization of Cannabis sativa by a short tandem repeat multiplex system.** Analytical and Bioanalytical Chemistry 2008;393(2):719-726. [Editor's Notes: Six STR markers

previously described for *Cannabis sativa* were multiplexed into one reaction. The reaction was able to individualize 98 cannabis samples (14 hemp and 84 marijuana, authenticated as originating from 33 of the 50 states in the U.S.) and detect 29 alleles averaging 4.8 alleles per loci. However, the data did not relate the samples from the same state to each other. Contact: Department of Chemistry and Biochemistry and International Forensic Research Institute, Florida International University, University Park, Miami, FL 33199.]

8. Min JZ, Shimizu Y, Toyo'oka T, Inagaki S, Kikura-Hanajiri R, Goda Y. **Simultaneous determination of 11 designated hallucinogenic phenethylamines by ultra-fast liquid chromatography with fluorescence detection.** *Journal of Chromatography, B: Analytical Technologies in the Biomedical and Life Sciences* 2008;873(2):187-194. [Editor's Notes: A new method based on ultra-fast LC coupled with fluorescence detection was developed for 11 phenethylamines (not specified in the abstract). The phenethylamines were labeled with 4-(N,N-dimethylaminosulfonyl)-7-fluoro-2,1,3-benzoxadiazole. The resulting 11 fluorophores were completely separated by reversed-phase chromatography, and fluorometrically detected at 550 nm (excitation at 450 nm). The limits of detection (S/N = 3) ranged from 10 fmol to 2.5 pmol. The method was applied to the analyses of real products obtained from Japanese markets. Contact: Division of Analytical and Bio-Analytical Chemistry, School of Pharmaceutical Sciences, and Global COE Program, University of Shizuoka, 52-1 Yada, Suruga-ku, Shizuoka, Japan 422-8526.]
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12. Zhang C, Zheng H, Qian Z. **Rapid test and source determination of heroin samples by GC/FID.** *Huaxue Fenxi Jiliang* 2007;16(5):39-41. [Editor's Notes: Presents the title study. 675 samples from Yunnan province and the Xinjiang autonomous region were analyzed. This article is written in Chinese. Contact: Institute of Forensic Science of Public Security of Ministry of China, Beijing 100038, Peop. Rep. China.]
13. Zhang JX, Zhang DM, Han XG. **Identification of impurities and statistical classification of methamphetamine hydrochloride drugs seized in China.** *Forensic Science International* 2008;182(1-3):13-19. [Editor's Notes: A total of 48 methamphetamine samples from 8 seizures were analyzed using GC/MS and GC/FID. Major impurities detected include 1,2-dimethyl-3-phenylaziridine, ephedrine/pseudoephedrine, 1,3-dimethyl-2-phenyl-naphthalene, 1-benzyl-3-methyl-naphthalene. These data indicate that ephedrine/pseudoephedrine were the

primary precursors for methamphetamine samples seized during 2006-2007. The presence of 1,3-dimethyl-2-phenyl-naphthalene and 1-benzyl-3-methyl-naphthalene indicate that 6 seizures were synthesized via the hydriodic acid/red phosphorus method. Five new impurities were identified (not specified in the abstract). Contact: Forensic Medical Examination Center of Beijing Public Security Bureau, Beijing, Peop. Rep. China.]

14. Zhang Z, Yan B, Liu K, Bo T, Liao Y, Liu H. **Fragmentation pathways of heroin-related alkaloids revealed by ion trap and quadrupole time-of-flight tandem mass spectrometry.** Rapid Communications in Mass Spectrometry 2008;22(18):2851-2862. [Editor's Notes: The electrospray ionization ion trap and quadrupole time-of-flight mass spectra of heroin, morphine, codeine, O6-monoacetylmorphine, thebaine, acetylcodeine, papaverine, and narcotine, were investigated. The ESI mass spectrometric fragmentation pathways of protonated O6-monoacetylmorphine, heroin, acetylcodeine, and thebaine were comprehensively elucidated for the first time with the aid of high-resolution mass spectrometry. It was found that cleavage of the piperidine ring was the featured fragmentation route of six of the compounds, excluding papaverine and narcotine. An HPLC-based method gave baseline resolution of all eight components. Contact: Beijing National Laboratory for Molecular Sciences, Key Laboratory of Bioorganic Chemistry and Molecular Engineering of Ministry of Education, Institute of Analytical Chemistry, College of Chemistry and Molecular Engineering, Peking University, Beijing, Peop. Rep. China 100871.]

**Additional References of Possible Interest:**

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