

Beyond Methamphetamine

Problem: The number of illegal drug labs has rapidly increased and consequently numerous buildings where drugs have been manufactured have been contaminated. There are a variety of drugs, in addition to Methamphetamine, that are illegally produced that may be present, as well as precursors and adulterants.

Solution: DataChem performs a variety of methods that can be used to assess residual contamination from illicit drug labs:

The following compounds are routinely quantitated by GC/MS:

<u>Contaminant</u>	<u>Sample Type</u>	<u>Analysis Method</u>
Methamphetamine	Cotton Gauze Wipe	GC/MS
Amphetamine		
Ephedrine		
Pseudoephedrine		
MDMA (ecstasy)		

Additional testing that may be of interest to clients assessing drug lab contamination:

<u>Contaminant</u>	<u>Sample Type</u>	<u>Analysis Method</u>
Inorganic Acids (6)	Wipe or Air Tube	NIOSH 7903
Solvents Scan	Summa Can or Carbotrap Tube	TO-15 or TO-17
Phosphorus + 26 Metals	Wipe or Air Filter	NIOSH 7300
Iodine	Wipe or Air Tube	N6005
Phosphine	Air Filter	OSHA 1003

GC/MS Semiquantitative Screen for the following compounds:

4-Bromo-2, 5-DMPEA	Cathinone	Flunitrazepam	Mescaline	Norephedrine (Phenyl propanol amine)
4-Methylaminorex	Chlorpheniramine	Hydrocodone	Methamphetamine	Norspseudoephedrine
Acetaminophen	Cocaine	Hydromorphone	Methaqualone	Oxycodone
Aminorex	Codeine	Ketamine	Methcathinone	Phencyclidine (PCP)
Amphetamine	Dextromethorphan	Lidocaine	Methyl phenidate	Phenethylamine
Atropine	Diazepam	MBDB	Morphine	Phentermine
BDB	Ecgonine, methyl ester	MDA (ecstasy analog)	N,N-Dimethyltryptamine	Pseudoephedrine
Benzyl piperazine	Ephedrine	MDEA (ecstasy analog)	N-Ethyl amphetamine	Theophylline
Bupropion	FenFluramine	MDMA (ecstasy)	Nicotine	Trifluoromethyl-phenyl piperazine
Caffeine	Fentanyl	Meperidine		

Quantitative Analysis available for any compound listed above.

For a complete list of our services, visit us at www.datachem.com

DataChem Laboratories, Inc.
960 West LeVoy Drive
Salt Lake City, UT 84123

1-800-356-9135—toll free
1-801-266-7700
Fax: 1-801-268-9992

marketing@datachem.com
www.datachem.com

Health and safety concerns for illicit drug labs extend beyond methamphetamine. Contamination and exposure may be from a number of other drugs, precursors, contaminants or adulterants. Identification and analysis of these compounds may be important depending on the information needed for the sampling site. Analysis for methamphetamine alone, may be short sighted and provide an incomplete assessment of contamination. For example, homes and buildings where illicit drugs have been manufactured may test negative for methamphetamine but may still be highly contaminated if other drugs were synthesized in the facility.

A Variety of Illicit Drugs

While methamphetamine is the drug of choice for many users and accounts for most of the illegal drug production, it is not the only illicit drug to look for. Other drugs reported as products of clandestine manufacture are aminorex, 4-methylaminorex, methaqualone, methcathinone, MDMA (and its analogs, MDA, MDEA, etc), PCP, LSD, and fentanyl and its analogs.

Methcathinone is on the increase in the United States and is of particular concern. Methcathinone has effects similar to methamphetamine and like methamphetamine it can be made from ephedrine or pseudoephedrine but it is actually easier to manufacture. It was widely abused in the former Soviet Union and now has been introduced to the US, beginning in Michigan. Methcathinone labs will test negative for methamphetamine and Law enforcement and forensic labs should be aware that methcathinone is an emerging methamphetamine substitute. A large proportion of clandestine labs in Michigan have been methcathinone labs.

The primary drug of choice for Rave parties has been ecstasy (MDMA). The majority of MDMA is manufactured in Holland, and Belgium, but MDMA manufacturing labs are springing up to meet the local demand. This may increase since the United States and Holland have agreed to crack down on the importation of this drug. In some areas the illicit manufacture of MDMA is not a minor problem. One report from British Columbia states that laboratories producing MDMA and related compounds in Canada are exceeding the output of methamphetamine laboratories.

The Rave phenomenon appears to be responsible for the resurgence in PCP manufacture as partygoers seek additional potent hallucinogens to augment or cap off their night of energetic dancing. Previous to the Rave phenomenon the dangers of PCP were avoided. PCP is not available commercially, so all sources of it are illegal, but it is very easy to manufacture in a clandestine laboratory. Illicit PCP manufacture had been centered in Southern California but recently a lab was intercepted on the East coast. While methamphetamine is still the major product of small drug labs, responders should be prepared to experience an increasing variety of synthetic products from such labs.

Precursors

It may be desirable to identify precursors used or the process used for drug synthesis. As various drugs become harder to manufacture from certain precursors due to tighter restrictions, new synthetic procedures, new precursors, and new drugs appear in order to meet demand. Methamphetamine was originally synthesized from 2-phenylpropanone (2-PP). The product was a mixture of D- and L-methamphetamine. When 2-PP was put on restricted availability, pseudoephedrine became a primary precursor, with a side benefit; the final product was pure D-methamphetamine, the active stereoisomer. In addition, pseudoephedrine was available at every drug store and supermarket. Now that the sale of large amounts of pseudoephedrine are restricted, other synthesis routes are being explored, including original synthesis of 2-PP. The presence of L-methamphetamine along with D-methamphetamine suggests the use of 2-PP as the precursor. Pure L-methamphetamine is however used as a bronchodilator in commercially available inhalers. Recent attempts have been made to make methamphetamine from ephedrine extracted from bales of ephedra straw imported from China. Methamphetamine made from such extracts are contaminated with amphetamine and N,N-dimethylamphetamine due to the presence of the respective precursors, cathine (an isomer of phenylpropanolamine) and N-methyl ephedrine or N-methyl pseudoephedrine.

Adulterants

Adulterants are substances intentionally or unintentionally added to illicit drugs in the process of production or distribution. Adulterants may exist as "impurities" which are unintentional by-products from manufacture or from impure starting material. Such impurities may help identify the nature or source of the starting material or the process being used to create the illicit drug. The identification of starting material may be important in obtaining convictions and in shutting down such sources.

Adulterants may be added to modify, enhance, prolong, or mimic the affects of a drug. For example, aspirin, lidocaine, L-methamphetamine, benzylpiperazine, trifluoromethylphenylpiperazine, methoxyphenylpiperazine, para-methoxyamphetamine, mescaline, and other psychoactive and non-psychoactive compounds have all been found in ecstasy pills. The extensive and varied adulteration of ecstasy sold to unsuspecting users is a concern, especially since it appears to be the norm. Caffeine and phentermine are frequently added to enhance the effects of many drugs. Pills containing caffeine and methamphetamine, called "Yaba" pills, are showing up in California. Caffeine is also added to ephedrine to make another form of "legal ecstasy". Ephedrine may also be added to methamphetamine to extend it.

The additive or synergistic affect of adulterants may be important to consider when evaluating the total toxicity of a contaminated site.

DataChem Laboratories, Inc.
"Quality Data On Time"[®]
960 West LeVoy Drive
Salt Lake City, UT 84123
www.datachem.com

1-800-356-9135—toll free
1-801-266-7700
Fax: 1-801-268-9992
marketing@datachem.com

