

## GENERAL INFORMATION ON DRUGS OF ABUSE AND DRUG DETECTION TESTING:

The detection times in urine are significantly greater than detection times in blood, which is also generally much more expensive. The presence of a drug or drugs in urine does not provide information as to whether the individual is actually under the influence at any particular time. Likewise, no determination can be made from urine as to the amount of the dose or the time of the dose.

Blood testing, on the other hand may provide more suitable information about whether or not an individual is "under the influence", though this may not be conclusive in all cases.

Urine drug testing accuracy is variable depending on how the testing is done. Drug testing is extremely accurate and reliable when all aspects of the testing process are done properly. On the other hand, the information obtained may be very misleading and inaccurate when poor procedures or testing methods are utilized. Drug testing will only be reliable when the consumer knows how it should be done and then demands from the industry that it is done properly.

Unfortunately, today, the majority of drug testing is poorly done and plagued with unreliable information. Below are aspects that should provide enough information to empower the consumer to demand proper testing procedures. There are three aspects to reliable drug testing:

- Strict collection procedures;
- Proper Testing Procedures;
- Random notification.

**Specimen Collection:** Collection of Urine should be done following a process of positive identification of the individual and full chain of custody procedures. In addition, and more importantly, the specimen should be certified by a means of temperature measurement with a digital thermometer. Acceptable ranges of temperature measurement should be within 96 to 99 degrees to preclude samples that are adulterated and or substituted.

Witnessed collections are not necessary and in fact are not as reliable as the digital measurement of temperature within 96 to 99 degrees. (If witnessed collection is done, it should also have the digital measurement done).

Plastic "temperature strips" which are attached to the vial should not be used to measure the temperature. Current widespread practice is for collection facilities to allow temperature certification within a range of 90 to 100 degrees Fahrenheit. In addition, it is also common to use "temp strips" for the determination of the temperature. These practices do not preclude adulteration and/or substitution of the specimen and are probably the source of most of the inaccuracy and unreliability of urine drug testing today.

SAMSHA (Substance Abuse and Mental Health Services Administration) has unwittingly encouraged these faulty practices by stating these wide limits (90 to 100 degrees) of temperature acceptability within the regulations. This has fostered nationwide incompetence in this area, allowing "positive" subjects to substitute or adulterate their urine unchecked and resulting in indeterminable number of "false negative" results.

DDL's procedure for collection of specimens is available to any collection facility that desires to improve their

collection procedures ([see SPECIMEN COLLECTION](#)).

### **Testing Procedure:**

Ensure all positive results are confirmed by GC/MS or LC/MS analysis. This is critical to ensure no "false positive" results occur.

There are two approaches to testing; **cut-off** type tests and **limit of detection** tests. A cut-off type test has an administrative "limit" set to report a positive result. If the drug is identified, but is below the limit, it is reported as "not detected".

The LIMIT OF DETECTION - The limit of detection tests reports any detectable amount present within the capabilities of the laboratory. This is typically well below the administrative "cut-offs" discussed above. The most reliable "negative" test results are those which are determined by a ZERO TOLERANCE testing procedure. SAMSHA certified laboratories are required to adhere to established cutoff concentrations. In other words, a specified amount of the drug or drugs is allowed to be present and still be reported as "negative". This results again in an increased number of "false negatives", or the reporting of a test result as "negative" when the drug is actually present.

To provide the most accurate and reliable information in a "negative" test, a ZERO TOLERANCE test should be done. Require that the laboratory follow zero tolerance by requesting that the detection limit of the drug or drugs be ruled by the LIMIT OF DETECTION of the GC/MS procedure. If the laboratory cannot accommodate that request, find another certified laboratory that will. (SAMSHA laboratories will not perform zero tolerance testing since the regulations require that established cutoff limits be followed).

Zero tolerance testing may also be more expensive, but will provide the most reliable information if testing is "negative" (assuming of course that the specimen was collected properly).

**Random Call:** Random notification is an important aspect of the reliability of drug detection. The detection of any drug is subject to the timing and amount of the dose. Subjects who have used illicit drugs may allow their system to clear if they have enough time. The notification of the individual should be done so as not to allow enough time to enable the person to clear the drug. Usually a limit of 24 hours is acceptable to detected most drugs besides alcohol (ethanol). If ethanol is of concern the collection should be done within 3 to 4 hours.

For information on drugs, you can view brief summaries of common drugs below.

**METHAMPHETAMINE** CLASS: Central Nervous System (CNS)  
Stimulant  
STREET NAMES: "Crank", "Speed",  
"Crystal", "Go-fast"  
MAJOR METABOLITE(S):  
Amphetamine  
SYMPTOMS/EFFECTS:  
Desired Effects: CNS Stimulation,  
euphoria, mood elevation, appetite

suppression.

General Effects: Restlessness, anxiety, irritability, tremors, confusion, paranoia (high doses)

Physiological Effects: Fixed (non-reactive to light) and dilated pupils, increased heart rate and blood pressure.

LENGTH OF TIME DETECTED:

Blood: 1-3 Days

Urine: 3-5+ Days (Longer with high dose - also urine pH dependent)

DURATION OF EFFECTS: Average = 2-6 hours (Up to 24 hrs with large doses)

MISCELLANEOUS INFORMATION:

Levels greater than 200 ng/mL indicate abuse.

## **COCAINE**

CLASS: Central Nervous System (CNS) Stimulant.

STREET NAMES: "Coke", "Crack", "Snow", "Flake"

MAJOR METABOLITE(S):

Benzoyllecgonine (B.E.), Ecgonine Methyl Ester (E.M.E.)

SYMPTOMS / EFFECTS: Same as listed for methamphetamine.

LENGTH OF TIME DETECTED:

BLOOD: Cocaine parent present up to approximately 5-6 hours post dose.

URINE: Cocaine parent present up to approximately 12 hours post dose.

Benzoyllecgonine metabolite present for approximately 3 days.

DURATION OF EFFECTS: I.V. /

Smoking = 30 - 40 minutes with peak effects at 3 - 5 minutes. Intra nasal = 60 - 90 minutes.

TYPICAL EFFECTS ON DRIVING

BEHAVIORS: Same as listed for methamphetamine.

## **CODEINE**

CLASS: Opiate Analgesics

MAJOR METABOLITE(S): Morphine

SYMPTOMS / EFFECTS: Desired:

Analgesia (Pain relief). Minimal symptoms occur at therapeutic doses.  
General Effects: At therapeutic doses minimal effects should occur. At high doses Central Nervous System depression may occur resulting in dizziness, drowsiness, apathy and lethargy.  
Physiological Effects: Minimal effects at therapeutic doses. At high doses constricted (pinpoint) pupils, warm and flushed skin, and respiratory depression can occur.  
LENGTH OF TIME DETECTED: Urine: 2 - 3 days.  
DURATION OF EFFECTS: 4 - 6 Hours.

## **MORPHINE**

CLASS: Opiate Analgesic  
MAJOR METABOLITE(S): Morphine Glucuronide  
SYMPTOMS / EFFECTS: Same as listed for codeine.  
LENGTH OF TIME DETECTED: Urine: 3 - 4 days.  
DURATION OF EFFECTS: 4 - 6 Hours.  
TYPICAL EFFECTS ON DRIVING BEHAVIORS: Same as listed for codeine.

## **HEROIN**

CLASS: Opiate  
STREET NAMES: "Smack", "Horse", "Diacetylmorphine"  
MAJOR METABOLITES: Morphine, 6-monoacetylmorphine (6-MAM)  
SYMPTOMS / EFFECTS:  
Desired: Euphoria and CNS Depression  
General: Slow speech, droopy eyelids, drowsy, lethargic, mentally slow  
Physiological: Constricted (Pinpoint) pupils, shallow breathing, muscle relaxation.  
LENGTH OF TIME DETECTED: Urine: 3-4 days as the morphine metabolite.  
DURATION OF EFFECTS: 4- 6 Hours.  
MISCELLANEOUS INFORMATION:  
The 6-monoacetylmorphine metabolite is

specific to heroin use only.

**PHENCYCLIDINE  
(PCP)**

**CLASS:** Formerly used as an animal tranquilizer, PCP is a unique drug exhibiting CNS stimulant, CNS depressant, analgesic and hallucinogenic properties.

**STREET NAMES:** "Angel Dust", "Hog"

**SYMPTOMS / EFFECTS:**

**Desired:** Euphoria, mood elevation, CNS stimulation, anesthesia.

**General:** Lethargy, drowsiness, ataxia, disorientation, disorganized thought, visual, tactile and auditory misperceptions, "blank" stare.

**Physiological:** Horizontal and vertical nystagmus, sweating, flushing, slurred speech and loss of pain perception.

**LENGTH OF TIME DETECTED:**

**Blood:** 1 -3 days

**Urine:** 3 - 7 + days (Lipid soluble - may be detected longer)

**DURATION OF EFFECTS:** 4 - 6+ hours

**MARIJUANA (THC)**

**CLASS:** Psychoactive

**STREET NAMES:** "Pot", "Grass", "Sensemilla", "Thai Sticks", "Acapulco Gold", "Reefer"

**MAJOR METABOLITES:** 11-nor-9-carboxy-delta-9 tetrahydrocannabinol.

(Note: delta-9 tetrahydrocannabinol is the major psychoactive ingredient)

**SYMPTOMS / EFFECTS:**

**Desired:** Euphoria, Relaxation, Anti-nausea effect, Hallucinations

**General:** Sedation, sleepiness, ataxia. and short term memory impairment.

**Physiological:** Red conjunctiva (Whites of the eyes), increased pulse & blood pressure.

**LENGTH OF TIME DETECTED:**

**Blood:**

**Frequent User:** Delta-9-THC = 4-8 hours post dose, then possible "baseline" level of

0.3 to 0.4 ng/ml. 11-nor-9-carboxy-THC = approximately 2 weeks + depending on past frequency of use.

Infrequent User: Delta-9-THC = 3-4 hours post dose  
11-nor-9-carboxy-delta-9-THC = 2 -3+ days post dose

Urine:

Several days to 30 days average, seen up to 3 months on an extremely heavy user.

THC is a lipid soluble drug, therefore stores in the fat in the body and the amount of time it takes to clear the system is dependent on how much drug was used and over what period of time the drug is used.

**DURATION OF EFFECTS:**

Approximately 3 hours, peaking at 60 - 90 minutes post dose.

<http://www.drugdetection.net/drug.htm>