

## INTENDED USE

The Drug Alert test panel is a lateral flow chromatographic immunoassay for the qualitative detection of multiple drugs and drug metabolites in urine at the following cut-off concentrations:

Test	Calibrator	Cut-off
Marijuana (THC)	11-nor- $\Delta^9$ -THC-9 COOH	50 ng/mL
Cocaine (COC)	Benzoyllecgonine	300 ng/mL
Opiates (OPI)	Morphine	2,000 ng/mL
Amphetamine (AMP)	D-Amphetamine	1,000 ng/mL
Methamphetamine (mAMP/MET)	D-Methamphetamine	1,000 ng/mL
Methylenedioxy-methamphetamine (MDMA) Ecstasy	D,L Methylenedioxy-methamphetamine	500 ng/mL

Configurations of the test panel can consist of any combination of the above listed drug analytes. This assay provides only a preliminary analytical test result. A more specific alternate chemical method must be used in order to obtain a confirmed analytical result. Gas chromatography/mass spectrometry (GC/MS) is the preferred confirmatory method. Clinical consideration and professional judgment should be applied to any drug of abuse test result, particularly when preliminary positive results are indicated.

## SUMMARY

The Drug Alert test panel is a rapid non-invasive urine screening test. The test utilizes monoclonal antibodies to selectively detect elevated levels of specific drugs in urine.

### MARIJUANA THC

THC ( $\Delta^9$ -tetrahydrocannabinol) is the primary active ingredient in cannabis (marijuana). When smoked or orally administered, THC produces euphoric effects. Users may have impaired short term memory and slowed learning. They may also experience transient episodes of confusion and anxiety. Long-term, heavy use may be associated with behavioral disorders. The peak effect of Marijuana administered by smoking usually occurs in 20-30 minutes and the duration is between approximately 90-120 minutes after one cigarette. Elevated levels of urinary metabolites are found within hours of exposure and remain detectable for between 3-10 days after smoking. The main metabolite excreted in the urine is 11-nor- $\Delta^9$ -tetrahydrocannabinol-9-carboxylic acid ( $\Delta^9$ -THC-COOH).

The test panel yields a positive result when the concentration of THC-COOH in urine usually exceeds 50 ng/mL. This is the

suggested screening cut-off for positive specimens set by the Substance Abuse and Mental Health Services Administration (SAMHSA, USA).

## COCAINE COC

Cocaine is a potent central nervous system (CNS) stimulant and a local anesthetic. Initially, it usually brings about extreme energy and restlessness while gradually resulting in tremors, over-sensitivity and spasms. In large amounts, cocaine may cause fever, unresponsiveness, difficulty in breathing and unconsciousness. Cocaine is often self-administered by nasal inhalation, intravenous injection and free-base smoking. It is excreted in the urine in a short time primarily as Benzoyllecgonine. Benzoyllecgonine, a major metabolite of cocaine, has a longer biological half-life (5-8 hours) than cocaine (0.5-1.5 hours), and can generally be detected for 24-48 hours after cocaine exposure.

The test panel yields a positive result when the cocaine metabolite in urine exceeds 300 ng/mL. This is the suggested screening cut-off for positive specimens set by the Substance Abuse and Mental Health Services Administration (SAMHSA, USA).

## OPIATES OPI (Opium & Heroin)

Opium can cause euphoria, followed by a sense of well-being and a calm drowsiness or sedation. Breathing slows, potentially to the point of unconsciousness and death with large doses. Other effects can include nausea, confusion and constipation. Use of opium with other substances that depress the central nervous system, such as alcohol, antihistamines, barbiturates, benzodiazepines, or general anesthetics, increases the risk of life-threatening respiratory depression.

Heroin is a highly addictive drug derived from morphine, which is obtained from the opium poppy.

The test panel yields a positive result when the morphine in urine usually exceeds 2,000 ng/mL. This is the suggested screening cut-off for positive specimens set by the Substance Abuse and Mental Health Services Administration (SAMHSA, USA).

## AMPHETAMINE AMP (Speed)

Amphetamine is a Schedule II controlled substance available by prescription and is also available on the illicit market. Amphetamines are a class of potent sympathomimetic agents with therapeutic applications. They are chemically related to the human body's natural catecholamines: epinephrine and norepinephrine. Acute higher doses may lead to enhanced stimulation of the central nervous system and induce euphoria, alertness, reduced appetite, and a sense of increased energy and power. Cardiovascular responses to Amphetamines can include increased blood pressure and cardiac arrhythmias. More

acute responses may produce anxiety, paranoia, hallucinations, and psychotic behavior. The effects of Amphetamines generally last 2-4 hours following use and the drug has a half-life of 4-24 hours in the body. About 30% of Amphetamines are excreted in the urine in unchanged form, with the remainder as hydroxylated and deaminated derivatives.

The test panel yields a positive result when Amphetamines in urine exceed 1,000 ng/mL. This is the suggested screening cut-off for positive specimens set by the Substance Abuse and Mental Health Services Administration (SAMHSA, USA).

## METHAMPHETAMINE MET (Crystal)

Methamphetamine is an addictive stimulant drug that strongly activates certain systems in the brain. Methamphetamine is closely related chemically to amphetamine, but the central nervous system effects of Methamphetamine are generally greater. Methamphetamine is made in illegal laboratories and has a high potential for abuse and dependence. The drug can be taken orally, injected, or inhaled. Acute higher doses may lead to enhanced stimulation of the central nervous system and induce euphoria, alertness, reduced appetite, and a sense of increased energy and power. Cardiovascular responses to Methamphetamine can include increased blood pressure and cardiac arrhythmias. More acute responses produce anxiety, paranoia, hallucinations, psychotic behavior, and eventually, depression and exhaustion. The effects of Methamphetamine generally last 2-4 hours and the drug has a half-life of 9-24 hours in the body. Methamphetamine is excreted in the urine as amphetamine and oxidised and deaminated derivatives. However, 10-20% of Methamphetamine is excreted unchanged. Thus, the presence of the parent compound in the urine indicates Methamphetamine use. Methamphetamine is generally detectable in the urine for 3-5 days, depending on urine pH level.

The test panel yields a positive result when the Methamphetamine in urine exceeds 1,000 ng/mL.

## METHYLENEDIOXYMETHAMPHETAMINE MDMA (ECSTASY)

Methylenedioxy-methamphetamine (ecstasy) is a designer drug first synthesised in 1914 by a German drug company for the treatment of obesity. Those who take the drug frequently report adverse effects, such as increased muscle tension and sweating. MDMA is not clearly a stimulant, although it has, in common with amphetamine drugs, a capacity to increase blood pressure and heart rate. MDMA can produce some perceptual changes in the form of increased sensitivity to light, difficulty in focusing, and blurred vision in some users. Its mechanism of action is thought to be via release of the neurotransmitter serotonin. MDMA may also release dopamine, although the general opinion is that this is a secondary effect of the drug (Nichols