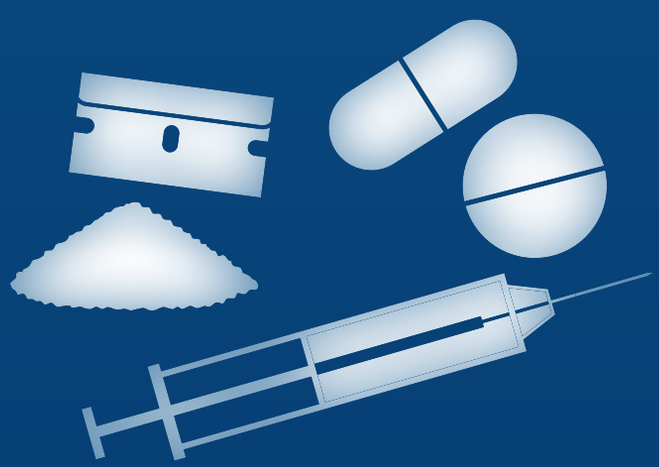
RANDOX
TESTING SERVICES

WORKPLACE DRUG TESTING



COMMON DRUGS OF ABUSE GUIDE

CONTENTS

01

INTRODUCTION

This brief guide to common drugs of abuse introduces the reader to some of the common drugs included within the workplace drug-testing programme provided by RTS. This guide is not intended to be a comprehensive text on the subject of toxicology; rather it aims to provide an awareness of some of the most commonly abused drugs.

It should be noted that drugs affect different people in different ways and may even affect the same person in different ways on different occasions. It is therefore not possible to state with any certainty the effects that a particular drug or combination of drugs will exert on an individual or how this will affect their behaviour at any specific point in time.

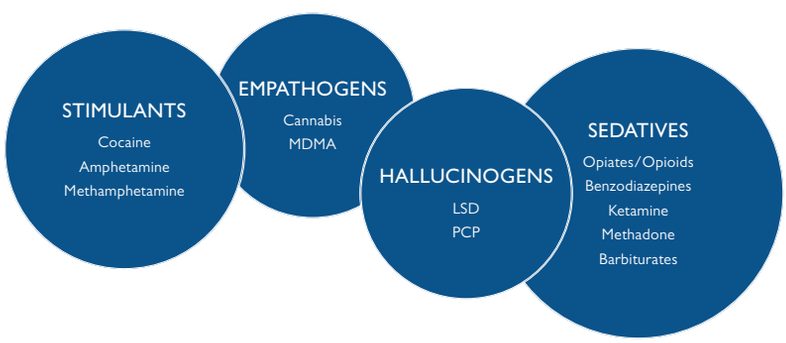
Different drugs affect the user in different ways dependent upon their mode of action. It can be useful to classify the various drugs based upon their effect. This model is presented, demonstrating how each drug is categorised dependent upon where it lies within the spectrum of effects a drug may have upon the user, from stimulants to sedatives.

A brief background to each drug is listed within a glossary and lastly some frequently asked questions about workplace drug testing are presented.

DRUG CLASSIFICATION BY EFFECT

Different drugs affect the user in different ways dependent upon their mode of action. Drugs can be broadly categorised into 4 groups relating to the type of effects they may exert upon the user; stimulants, empathogens, hallucinogens and sedatives. Some drugs may exert a combination of effects and so may span across two or three category types (see Figure 1).

Figure 1:
Venn Diagram Representation of Drug Effects



DRUG CLASSIFICATION BY EFFECT

STIMULANTS

Stimulants (uppers) are a class of psychotropic drug that stimulate the central nervous system (CNS) and increase activity in the brain. The user may experience euphoria and feelings of empowerment. Some clinical symptoms may include tachycardia (fast heart rate), hypertension (high blood pressure), dilated pupils, sweating, loss of appetite, sleeplessness, tremors and speech difficulties.

Stimulants may help maintain alertness for a short period of time; however, eventually the user will become fatigued. Abuse of stimulants may result in the following primary effects: disinhibition, feelings of empowerment and confidence and increased risk-taking behaviour. Late phase effects may include depression, exhaustion, dysphoria (feelings of unhappiness and dissatisfaction) and irritability.

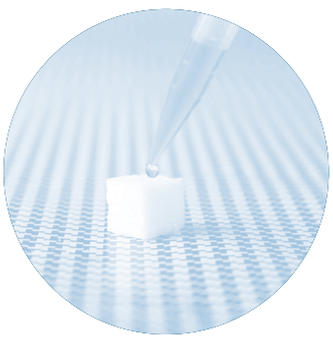
Drug stacking of short-action stimulant-type drugs refers to the ingestion of single doses of drugs consecutively as effects begin to wane, similar to cocaine or methamphetamine binges. Such extensive or binge use usually occurs over weekends, and can result in exhaustion, apathy, depression, irritability, and insomnia and muscle tension early the next week (often referred to as “terrible Tuesdays”).

EMPATHOGENS

Empathogens are a class of psychotropic drug that produce experiences of emotional communion, emotional openness, empathy or sympathy. They often also produce stimulant and/or hallucinogenic behaviour to varying degrees. For this reason, such drugs are popular in the dance club party scene.

03

DRUG CLASSIFICATION BY EFFECT



HALLUCINOGENS

Hallucinogens are a class of psychotropic drug that affect perception of reality (space, colour, sound, time, etc), resulting in delusions, hallucinations or temporary psychosis.

The effects are unpredictable and will depend on the dose ingested, the user's personality and mood, expectations and the surroundings. "Bad trips" may consist of severe, terrifying thoughts and feelings, fear of losing control and despair.

SEDATIVES

Sedatives are a class of psychotropic drug that depress the central nervous system or brain activity. The user may experience feelings of calmness, and sedation through to drowsiness. Clinical symptoms are those typically defined by respiratory depression and may include bradycardia (slow heart rate) and hypotension (low blood pressure).

Clinical use of some sedatives may combat anxiety, spasm/seizures or insomnia. Abuse may result in apathy, lethargy, drowsiness, inability to concentrate and in extreme cases of abuse, coma and death.

Many sedatives are also narcotics (ie. mode of action involves binding to receptors in the brain to block feelings of pain-analgesia). Some are powerfully addictive.

ROUTES OF DRUG ADMINISTRATION

Most drugs may be taken in a number of ways. The route of administration dictates how quickly the drug is absorbed into the body and therefore how quickly the drug has an effect.

Intravenous injection, smoking (inhalation) or snorting (insufflation) may result in almost instant effects (within minutes). Stimulants like cocaine or amphetamine may be rubbed around the gums for quick absorption but normally oral ingestion of a drug results in considerably slower absorption and effects may take over an hour to peak.

The quicker the drug is absorbed into the blood stream, the quicker and more intense the effect. The user may take multiple consecutive doses of the drug to prolong the experience (drug stacking).

GLOSSARY

COMMON DRUGS OF ABUSE GLOSSARY

A

Amphetamines

Amphetamines are a group of stimulant drugs comprised of amphetamine itself, methamphetamine, MDMA (ecstasy) and MDA.

AMPHETAMINE *(SPEED)*

Amphetamine may be used clinically in the treatment of ADD (attention deficit disorder), obesity, narcolepsy and hypotension as dexamphetamine (Dexedrine). Amphetamine is also subject to abuse due to its euphoric stimulant effects.

Street preparations are most commonly encountered as an off-white or cream coloured powder, although tablets are occasionally encountered. Amphetamine is most commonly taken orally but it may also be taken by nasal insufflation "snorting" or dissolved for intravenous injection.

Use of amphetamines can give rises to two phases of use, firstly the early phase where the stimulatory effects are experienced. This is followed by late phase effects where the come down effects are experienced.

Some early phase symptoms include: reduced fatigue and alertness, feelings of increased energy and strength, fidgeting and elevated mood such as mild euphoria, increased self-confidence and greater sociability. Persons under the influence of amphetamine may exhibit increased risk-taking behaviour. Some late phase symptoms "come down" effects include: fatigue, drowsiness, anxiety, agitation, irritability, restlessness and depression. Regular chronic amphetamine use can lead to behavioural issues and psychotic illness, particularly in individuals predisposed to such conditions.

ECSTASY *(MDMA / MDA)*

MDMA, (ecstasy, XTC) is an illicit psychotropic amphetamine derivative widely recreationally used as a party, rave or dance drug for its stimulant, mild hallucinogenic, and empathogenic properties. MDMA metabolises to MDA (methylenedioxyamphetamine) in the body. MDA itself is an illicit psychotropic drug with similar hallucinogenic effects to MDMA.

Low to moderate doses produce mild intoxication, relaxation, a calm euphoria and changes in perception. The empathogenic properties of the drug produce feelings of peace and well-being and increased sociability and closeness.

At higher doses, agitation, panic attacks, and illusory or hallucinatory experiences may occur. Physiological effects include mild visual disturbances (blurred or double vision, increased light sensitivity), dilated pupils, dry mouth, sweating, ataxia, muscle tension, and involuntary jaw clenching.

Subjects may experience late-phase effects such as fatigue, depression, sleep problems, drug craving, severe anxiety, paranoia, impaired co-ordination, attention dysfunction (difficulty to maintain attention during complex tasks).

07

COMMON DRUGS OF ABUSE GLOSSARY

A

Amphetamines

METHAMPHETAMINE *(CRYSTAL METH)*

Methamphetamine is a central nervous system stimulant with a high potential for misuse and dependence. A synthetic drug, it is closely related chemically to amphetamine "speed" but produces greater effects on the central nervous system (more potent).

Methamphetamine takes the form of a white odourless and bitter tasting crystalline powder, readily soluble in water or alcohol, and can also be produced in tablet or powder form. It can be smoked, injected, snorted or consumed orally. In contrast to cocaine, the hydrochloride salt of methamphetamine can itself be smoked.

Methamphetamine has no legitimate medical use in the UK. Recreationally, methamphetamine is abused to increase alertness, relieve fatigue, control weight, and for its intense euphoric effects.

Methamphetamine is subject to abuse due to its immediate, intense euphoric, stimulant effects, reportedly similar to, but more intense and longer lasting than those of cocaine. Because the pleasure also fades quickly, users often take repeated doses, in a "binge and crash" pattern.

Use of methamphetamines can give rises to two phases of use: firstly the early phase where the stimulatory effects are experienced. This is followed by late phase effects where the come down effects are experienced.

Some early phase symptoms include: euphoria, rapid speech, motor restlessness, hallucinations, delusions, psychosis, insomnia, reduced fatigue or drowsiness, increased alertness, feelings of increased physical strength, and poor impulse control. Some late phase symptoms "come down" effects include: fatigue, drowsiness, anxiety, agitation, irritability, restlessness and depression. Depending on dose, feelings of dysphoria, paranoia, violence, aggression, pseudo-hallucinations, delusions, psychosis, and drug craving may also be apparent.

People who use methamphetamine long-term may experience anxiety, confusion, insomnia, and mood disturbances and display violent behaviour. They may also show symptoms of psychosis, such as paranoia, visual and auditory hallucinations, and delusions.

COMMON DRUGS OF ABUSE GLOSSARY

B

Barbiturates

BARBITURATES

Barbiturates are a large family of CNS-depressant drugs prescribed for their sedative and anticonvulsant properties in the treatment of sleep disorders, anxiety or seizures (epilepsy). In recent times, their use has been largely replaced by benzodiazepines which are considered to cause less unpleasant side-effects. They are however, still commonly encountered in emergency medicine as an adjunct to anaesthesia (thiopental, secobarbital).

Barbiturates can cause aggression, confusion, depression or anxiety, even in small doses. At a higher dose, they can produce sedation, incoherence and incoordination. Large doses can cause potentially fatal respiratory depression and this effect is potentiated by alcohol and other CNS-depressants, such as opioids.

The barbiturate family of drugs is large, but the more commonly encountered include phenobarbital, secobarbital, pentobarbital, thiopental, amobarbital and butabarbital.

09

COMMON DRUGS OF ABUSE GLOSSARY

B

Benzodiazepines

BENZODIAZEPINES

Benzodiazepines encompass a large group of chemically-related psychoactive drugs with sedative, hypnotic, anticonvulsant and anxiolytic properties. They are commonly prescribed to treat anxiety, insomnia, seizures, nausea and depression. Among the most frequently-encountered benzodiazepines are diazepam (and its metabolites (breakdown products) nordiazepam, temazepam and oxazepam) and lorazepam. Other members of the benzodiazepine group of drugs include alprazolam, clonazepam, nitrazepam, phenazepam and chlordiazepoxide.

Common physiological effects of benzodiazepine use include drowsiness, sedation, muscle weakness, and ataxia. Less frequent effects include vertigo, headache, confusion, depression, slurred speech, changes in libido, tremor and visual disturbances. Some patients may have a paradoxical excitation, which may lead to hostility, aggression, and disinhibition. The sedative effects are most marked during the first few days of use and can cause drowsiness and muscle weakness and impair concentration and alertness. Licensed product information for benzodiazepines advise affected patients to avoid potentially hazardous tasks such as driving or operating machinery and to avoid alcohol.

DIAZEPAM *(VALIUM)*

Diazepam is a typical long-acting benzodiazepine used for the treatment of anxiety, insomnia, withdrawal symptoms and seizures. Diazepam is metabolised in the body to produce nordiazepam, oxazepam and temazepam, so often some or all of these drugs are detected in combination.

NORDIAZEPAM *(DESMETHYLDIAZEPAM)*

Nordiazepam is a long-acting benzodiazepine with the general properties of diazepam. Although it is not prescribed in the UK, it commonly appears in urine toxicology reports as the principle active metabolite of several benzodiazepines (most commonly diazepam and chlordiazepoxide).

LORAZEPAM

Lorazepam is a short-acting benzodiazepine similar to oxazepam and temazepam, used as an anti-anxiety agent. Lorazepam is also a metabolite of diclazepam, a designer benzodiazepine which has been recently reported as the subject of abuse.

OXAZEPAM

Oxazepam is a short-acting benzodiazepine with general properties similar to those of diazepam. It is used in the short-term management of anxiety disorders, insomnia and alcohol withdrawal. It is also a metabolite of diazepam and temazepam.

TEMAZEPAM

Temazepam is a short-acting benzodiazepine with general properties similar to those of diazepam. It is used as a hypnotic in the short-term management of insomnia and for premedication before surgical or investigative procedures. It is also a metabolite of diazepam.

COMMON DRUGS OF ABUSE GLOSSARY

C

CANNABIS

CANNABIS/CANNABIS OIL/CBD/HEMP - IT'S NOT JUST IN THE NAME.

Cannabis, Cannabis Oil, CBD and Hemp Oil are all naturally produced from the plant, *Cannabis sativa*, but each is distinctly different both in terms of use, availability and legality. Confusion arises because their names are often interchanged, misunderstood and mistaken for each other. The cannabis plant uniquely contains more than a hundred chemical compounds called cannabinoids; the two most well-known are THC (tetrahydrocannabinol) and CBD (cannabidiol). THC is the psychoactive ingredient of cannabis for which it is abused. CBD is not psychoactive but is reported to beneficial to health.

CANNABIS

Cannabis is the UK's most popular illicit recreational drug. It is the name given to the dried herbal matter of the cannabis plant containing THC, which is typically smoked. Cannabis is a controlled substance and its use, possession and sale in the UK is illegal.

CANNABIS OIL

Cannabis Oil is an extract from the *Cannabis sativa* plant that is rich in THC. It is sometimes referred to as hash oil or hashish (a resin). It is typically smoked in a pipe, bong, vaporiser or joint.

From the 1st of November 2018, cannabis oil and other cannabis preparations may be prescribed in the UK to alleviate epileptic seizures and pain in some specific medical conditions, such as spasticity due to MS. It is prescribed by expert doctors under regulated conditions and must be supported by medical documentation. The first cannabis-derived medicinal product to be licensed in the UK, Sativex, is a mouth spray but other products may be licensed as oils or capsules.

A claim that a positive cannabis drug test is the result of the legitimate use of medicinal cannabis should not be discounted, but medical proof should be requested.

11

COMMON DRUGS OF ABUSE GLOSSARY

C

CANNABIS

CBD *(Cannabidiol)*

CBD (Cannabidiol) is derived from a specific variety of the *Cannabis sativa* plant species known as hemp, which is high in CBD and low in THC. The use of CBD oil is becoming widespread for its reported health-giving benefits. Commercial products must be tested to demonstrate they contain negligible amounts (less than 0.2%) of THC. For this reason, it is not psychoactive and is 100% legal and will not lead to a positive cannabis drug test.

However, it is also sometimes (mistakenly) referred to as 'cannabis oil' which causes confusion.

HEMP

Hemp is a fast-growing strain of *Cannabis sativa* specifically bred for its fibre (for industrial textile use), oils (including CBD oil) and nutritional benefits among its ever-expanding range of uses. However, hemp is bred to be low in THC. Hemp seed oil is acquired by pressing the hemp seeds only and contains neither THC nor CBD. Hemp oil is perfectly legal and you may find it in some health food products or even beauty products.

IT'S NOT MY FAULT!

Use of cannabinoids (the group term for these substances) should be considered carefully and legally purchased products chosen wisely. If the user of a supposed CBD preparation is subsequently found to be positive for THC on a drug test, then ignorance of the law is not a defence. In the same way as professional athletes may fall foul of accidental use of a banned substance due to a change in supplement supplier, an employee claiming that a positive cannabis drug test is the result of use of CBD will not constitute a water-tight defence.

The use of a legally available over-the-counter CBD or hemp product will not result in a positive THC urine, oral fluid or hair drug test. This can only be the result of illicit use of cannabis or the use of medicinal cannabis products, but not through the use of health food and dietary supplements containing cannabis derivatives. As always, a presumptive positive screen result for cannabis should be processed for confirmatory analysis and appropriate actions put in place until the confirmed result has been reported.

COMMON DRUGS OF ABUSE GLOSSARY

C

COCAINE

COCAINE

Cocaine is one of the oldest and most potent of the naturally-occurring central nervous system stimulants. Benzoylecgonine is the primary metabolite of cocaine, and therefore acts a marker in drug testing to indicate cocaine use.

The stimulant effects usually appear within a few minutes following nasal insufflation (snorting) and almost immediately if the drug is smoked (in the form of "crack" cocaine). The leaves of the coca plant may also be brewed to make 'Peruvian or Bolivian tea'. The effects of cocaine last for about half an hour to one hour, after which there may be a strong desire to use more of the drug.

The stimulant effects of cocaine may include increased self-confidence and talkativeness, increased energy and alertness, increased strength, an increase in risk-taking behaviour and feelings of intense euphoria.

Large doses of cocaine may cause the user to become hyperactive, paranoid and anxious and may lead to violence and aggression. Clinical symptoms may include dilated pupils.

As the stimulant effects of cocaine subside, the user begins to experience the come-down effects of the drug, which may include anxiety, irritability, drowsiness and agitation.

Benzoylecgonine can persist in urine at detectable concentrations from 2-4 days following recreational use. Chronic, heavy use of cocaine can result in detectable amounts of benzoylecgonine in urine for up to 10 days following a binge.

COCAINE IN DENTISTRY

Due to its toxicity and risk of addiction, the use of cocaine in dentistry has been replaced by modern less harmful alternatives (eg. lidocaine, benzocaine). The use of such alternative topical/ local anaesthetics will not result in the detection of cocaine or benzoylecgonine in a toxicology test.

Although the clinical use of cocaine is not common-place, it may still be prescribed for use as an anaesthetic in eye, ear, nose or throat surgery as a local or topical anaesthetic and vasoconstrictor.

13

COMMON DRUGS OF ABUSE GLOSSARY

M

METHADONE

METHADONE

Methadone is a synthetic opioid used in the treatment of moderate to severe pain and in the management of heroin addiction. EDDP is the primary metabolite of methadone; therefore the detection of either or both in drug testing indicates the use of methadone.

Recreationally methadone is abused for its sedative and analgesic effects.

Some effects associated with methadone use may include: drowsiness, sedation, dizziness, light-headedness, mood-swings (euphoria to dysphoria), depressed reflexes, altered sensory perception, stupor, and coma.

Although reported to be less sedating than morphine, repeated doses of methadone may result in marked sedation due to accumulation of the drug. Long-term users may become tolerant to the sedative effects of the drug.

COMMON DRUGS OF ABUSE GLOSSARY

O

OPIATES AND OPIOIDS

OPIATES AND OPIOIDS

All opioids function as narcotic analgesics by binding to specific receptors in the brain and central nervous system. Opiates are a subclass of opioids derived naturally from opium (the sap from the opium poppy seed pod). Opium is refined to yield the opiates morphine, and codeine. Morphine is chemically processed to produce heroin (an opioid).

All opioids can be abused for the feelings of euphoria they induce at high doses.

Adverse effects experienced with use/abuse of opioids are dose dependent and include apathy, a lack of concentration and alertness, impaired coordination, lethargy, sedation and drowsiness. Drowsiness may affect the ability to perform skilled tasks, so those affected should not drive or operate machinery. Opioids can produce physical and psychological dependence and are subject to abuse.

Tolerance to the effects of opioids can rapidly develop with continued use although increasing dosages can cause reoccurrence/worsening. With most prescribed drugs, careful monitoring of possible adverse effects is recommended, especially during the early stages of use.

Clinical symptoms of opiate abuse include constricted pupils, respiratory depression (slow heart rate and low blood pressure) and depending on level of developed tolerance and potency and dose of the opiate/opioid taken, potentially coma and death.

CODEINE *(OPIATE)*

Codeine is an opiate analgesic less potent than morphine with relatively mild sedative effects. Codeine is also found in numerous proprietary preparations in combination with non-narcotic analgesics, antihistamines and other drugs. Codeine is broken down in the body to produce morphine, hydrocodone and to a lesser extent, dihydrocodeine.

DIHYDROCODEINE *(OPIATE)*

Dihydrocodeine is a semi-synthetic opioid analgesic. It is related to codeine and has similar analgesic activity. Dihydrocodeine is used for the relief of moderate to severe pain, often in combination preparations with paracetamol. It has also been used as a cough suppressant. The presence of dihydrocodeine in a urine specimen may also result from the metabolism of codeine in the body.

15

COMMON DRUGS OF ABUSE GLOSSARY

O

OPIATES AND OPIOIDS

HEROIN *(OPIATE)*

Heroin (diamorphine) is the semisynthetic diacetyl derivative of morphine. It is a potent pain-killing drug administered for the treatment of severe pain. It occurs as a white powder but is typically administered by injection in solution.

Illicit heroin may vary in colour from white to dark brown due to impurities, or may appear as a black tar-like material. Heroin is a drug of addiction that is normally abused by either injection, smoking or the inhalation of the fumes produced when it is heated (chasing the dragon).

Following an intravenous dose of heroin, the user generally feels an intense surge of euphoria "rush" accompanied by a warm flushing of the skin, dry mouth, and heavy extremities. The user then alternates between a wakeful and drowsy state where the following symptoms may be evident: apathy, a lack of concentration and alertness, impaired coordination, lethargy, sedation and drowsiness.

Heroin is rapidly metabolised in the body to 6-monoacetylmorphine (6-MAM), which in turn is further metabolised to morphine at a somewhat slower rate. 6-MAM is a unique metabolite to heroin and therefore its presence confirms the administration of heroin.

Heroin has a high physical and psychological dependence. With regular use, tolerance develops early to the duration and intensity of euphoria and analgesia, requiring the user to increase the dose taken to achieve the desired effect.

Overdose may result in respiratory depression, coma, convulsions, cardiovascular collapse and death.

HYDROCODONE *(OPIOID)*

Hydrocodone is a semi-synthetic narcotic analgesic reportedly six times more potent than codeine. Hydrocodone is not prescribed in the UK. Hydrocodone can also be found in the body due to the metabolism of codeine or hydromorphone.

HYDROMORPHONE *(OPIOID)*

Hydromorphone (Palladone) is a semi-synthetic narcotic analgesic reportedly 7-10 times more potent than morphine with similar liability for addiction. Hydromorphone can also be found in the body due to the metabolism of morphine.

MORPHINE *(OPIATE)*

Morphine is an opiate analgesic prescribed for the relief of moderate to severe pain in both acute and chronic management. It occurs as a white powder but is typically administered in solution either orally or by injection.

Morphine may be abused for the feelings of euphoria it produces at high dose and can be highly addictive.

Morphine may also be detected in drug tests as a result of the metabolism of codeine and heroin in the body. It is also possible for the consumption of poppy seeds (for example found in some speciality bread products) to lead to a positive morphine result in a urine drug test.

COMMON DRUGS OF ABUSE GLOSSARY

O

OPIATES AND OPIOIDS

OXYCODONE *(OPIOID)*

Oxycodone is an opioid analgesic equipotent with morphine. Oxycodone hydrochloride is given orally or by subcutaneous or intravenous injection for the relief of moderate to severe pain.

OXYMORPHONE *(OPIOID)*

Oxymorphone is reported to be 7-10 times more potent than morphine. It produces all the signs of classic opiate intoxication.

P

PHENCYCLIDINE

PHENCYCLIDINE

Phencyclidine (PCP, angel dust) has no legitimate clinical use but is illicitly abused for its hallucinogenic mind-altering effects. Its ability to distort sights and sounds can lead to feelings of detachment (floating) from one's self. It is available in tablets, capsules, crystals, and coloured powders. PCP is usually taken by mouth, snorting or added to tobacco or cannabis cigarettes and smoked.

FAQ’S

FREQUENTLY ASKED QUESTIONS

We appreciate that difficult decisions may arise from the receipt of your workplace drug testing programme toxicology certificates. That is why we have put together a short list of FAQ's to help you best understand your results.

Q What is a urinary drug screen?

A The process of drug testing urine specimens is two-step. Firstly, the drug screen identifies all negative specimens which then require no further action. Any specimens that are not negative are flagged as 'presumptive positive' and require further testing.

The screening process may be carried out on-site using a POCT (point of care) urine test pot or the specimen may be returned to the laboratory to be tested there.

Q What is a screening cut-off?

A A cut-off is a threshold concentration of a drug in the specimen. If the drug is not detected or measured below the cut-off, the sample is reported as negative. At RTS, we apply cut-offs in accordance with EWDTS (European Workplace Drug Testing Society Guidelines) for urine or other recognised cut-offs specfic to certian industries.

The initial drug screen uses immunoassay technology, an efficient high-throughput screening technique, to identify negative specimens from those requiring a second confirmatory test.

A specimen may be flagged as 'presumptive positive' if the total concentration of a number of related drugs or drug metabolites (drug breakdown products in the body) in the urine specimen exceeds the screening cut-off limit.

Q What action should be taken if I receive 'presumptive positive' screening result?

A RTS advise that a confirmatory test should be carried out to confirm or negate the screen result. RTS do not advise any disciplinary action before the screen result has been confirmed.

19

FREQUENTLY ASKED QUESTIONS

Q What is a confirmatory test?

A Any specimen that flags 'presumptive positive' on a screen test undergoes secondary analysis using mass-spectrometry. This is called a confirmatory test. This method is much more specific than the screening test and can identify and measure a single drug in the specimen. For example, a confirmatory test is required to distinguish between the use of the over-the-counter opiate painkiller, codeine from the use of the illicit opiate, heroin.

EWDTS and other regulatory bodies requires the presence of a single specific drug (or metabolite) at a concentration greater than the confirmatory cut-off concentration before it can be reported as a positive result. A confirmatory test is legally defensible.

Q Why do the screening and confirmatory tests have different cut-offs?

A For example, if someone takes codeine (a common over-the-counter medication taken for pain relief), the codeine in their body breaks down to morphine, and both further break down to more opiate-like metabolites. All these related opiates will result in a 'presumptive-positive' flag for 'opiates' if their combined total concentration is above the EWDTS screening cut-off (300ng/ml), where applicable.

Similarly, when someone takes cannabis, a number of related cannabinoids will be found in the body. All these related cannabinoids will result in a 'presumptive-positive' flag for 'cannabis' if their combined total concentration is above the EWDTS screening cut-off (50ng/ml), where applicable.

The confirmatory test targets a single specific drug (or drug metabolite). In the case of cannabis, the test targets a single, specific cannabis metabolite (THC-COOH) which must be measured in excess of the EWDTS confirmatory cut-off concentration in the urine (15ng/ml) to be reported positive for cannabis, where applicable.

Q How are the cut-offs set?

A The cut-offs are set by the EWDTS and other regulatory bodies to distinguish passive use or environmental exposure to a drug over actual active ingestion.

Q Why was the screen test positive but the confirmation test negative?

A Although a specimen 'screened' presumptive positive (i.e. the concentration of all related drug material in the urine specimen was above the screening cut-off concentration), the confirmatory analysis may determine that no specific drug exceeded the confirmatory cut-off concentration and thus will be reported negative.

FREQUENTLY ASKED QUESTIONS

Q What does the reported drug concentration in urine mean?

A When someone takes a drug or medication, the concentration of that drug circulating in the blood is directly related to the effect of that drug on the person. However, after the blood is filtered by the kidneys, the drug (and its metabolites/breakdown products) ends up in the urine collecting in the bladder. The effect of metabolism and accumulation of the drug as it pools in the bladder means that there can be little significance given to the measured concentration of the drug in urine, other than if it exceeds the EWDTS/other regulatory body cut-off or not. It is not possible to tell how much drug a person has taken or when they have taken it from a single urine test.

Q If I arrange a second drug test, can I tell if someone has taken a drug since the previous test?

A Some customers provide their employee an opportunity to 'get clean' and monitor their abstinence with subsequent drug tests. We recommend further tests for such purposes a week or two apart. In most, cases, if the employee has abstained, they will pass the second test. However, some drugs can persist in the body for more than a week (in particular cannabis), but we would still expect to find the drug concentration to be significantly lower in the urine on the re-test.

OF COURSE, SHOULD YOU STILL HAVE ANY QUESTIONS, PLEASE DON'T HESITATE TO CONTACT YOUR ACCOUNT MANAGER OR THE RTS LABORATORY.

21

GUIDANCE ON SPECIMEN VALIDITY FAILURE

Urine specimen validity testing is conducted to ensure the integrity of the sample and the legitimacy of the toxicology results obtained from the urine specimen. The process comprises of a number of different tests:,

Normal physiological parameters of the urine specimen, such as pH, specific gravity and creatinine (a chemical naturally excreted in urine) are tested to check if they fall within normal range. In addition, the temperature is taken at point of collection to check it corresponds to a freshly-provided specimen.

A parameter outside of its normal range does not necessarily mean the urine specimen has been deliberately tampered with. Rather it indicates the specimen has been deemed atypical and therefore any negative toxicological result may not be considered reliable.

A specimen could be considered atypical if affected by certain physiological conditions such as state of hydration, abnormal kidney function or body temperature.

Presence of chemicals which are not normally found in the urine specimen of a healthy donor, such as glutaraldehyde, oxidants or nitrites, is also checked. The presence of one of these chemicals has the potential to adversely affect the toxicology test.

Such chemicals may be deliberately added to a urine specimen to falsify the test result (adulteration). However their presence in a urine specimen could occur due to certain medical conditions, for example, ketoacidosis or urinary tract bacterial infection.

Specimen integrity failure does not necessarily indicate a specimen has been adulterated and should not be categorised as a toxicology test failure. Randox Testing Services advises that a failure in a specimen validity test should not lead to any form of disciplinary action.

There are a number of innocent mitigating circumstances whereby a specimen may not meet all validity test criteria. This is not a regular occurrence, but it does occur. These validity tests are included to ensure accurate toxicology results are obtained at all times and err on the side of caution.

In order to ascertain the toxicological status of the donor, a repeat urine collection at the earliest opportunity is advised. Should the follow-up urine sample also fail the specimen integrity checks, it is recommended that a Medical Review Officer be consulted to investigate.

DRUG TRADE AND SLANG NAMES

	TRADE / BRAND NAMES	SLANG / STREET NAMES
AMPHETAMINES		
Amphetamine	Adderall, Benzedrine, Dexedrine	Whizz, Speed, Phet, Dexies, Pep pills
MDMA / MDA	3,4 - Methylenedixymethamphetamine (MDMA), 3,4 - Methylenedioxyamphetamine (MDA)	Ecstasy, XTC, Adam, X, E, Molly
Methamphetamine	l-desoxyephedrine (ingredient of Vicks Inhaler)	Crystal Meth, Chalk, Crank, Glass, Meth, Ice, Tina
BARBITURATES		
Barbiturates	Phenobarbital (Luminal), Amobarbital (Amytal), Pentobarbital (Nembutal), Secobarbital (Seconal)	Barbs, Bluebirds, Blues, Tooies, Downers, Phennies, Yellow Jackets, Blue devils, Reds and Rainbows
BENZODIAZEPINES		
Benzodiazepines		Benzos, Nerve Pills, Downers,
Diazepam	Valium, Valrelease	Vs, Blue Vs (10mg valium), Yellow Vs (5mg Valium), Dead Flower Powers, Foofoo, Howards, Sleep Away
Lorazepam	Ativan	Control, Silence, Downers, Trances
Nordiazepam	Nordazepam, Nordaz, Stilny, Madar, Vegesan, and Calmday; Desmethyldiazepam (DMD)	n/a
Oxazpepam	Serax	n/a
Temazepam	Normison, Restoril	Jellies
CANNABIS		
Cannabis	*Cannabis sativa*, Marijuana, Tetrahydrocannabinol (THC), Dronabinol, Marinol and Nabilone	Dope, Doobie, MJ, Mary Jane, Grass, Pot, Roach, Skunk, Weed
COCAINE		
Cocaine	n/a	Cocaine: Charlie, Coke, Blow, Snow, Line, Rail Crack cocaine: Rock Candy, Rocks, Nuggets

23

DRUG TRADE AND SLANG NAMES

	TRADE / BRAND NAMES	SLANG / STREET NAMES
METHADONE		
Methadone	Dolophine, Methadose	Dollies, Mud, Red Rock, Tootsie Roll, Amidone, Fizzies, Balloons, Breaze, Buzz Bomb, Cartridges, Jungle Juice, Junk
OPIATES / OPIOIDS		
Opiates / Opioids	Opium	Big O, God's Own Drug, Gum
Codeine	n/a	As a cough syrup: Sizzurp, Promethazine, Syrup, Drank, Purple, Lean
Dihydrocodeine	6-α-hydrocodol, Drocode, DHCplus, Synalgos-DC, Remedeine	n/a
Hydromorphone	Dilaudid	Dust, Juice, Smack, D, Footballs, Dilly, Dill, Dillies, Big D, Hydro, Super 8, M-2, M-80s, Hospital Heroin, Moose, White Triangles
Morphine	Astramorph, Avinza, Duramorph, Kadian, Kapanol, Oramorph, Liosomal, Roxanol	Aunt Emma, Mister Blue, Morpho, Dreamer, New Jack Swing, Unkie, C&M, Emsel
Oxymorphone	Opana	n/a
PCP		
PCP	Phencyclidine, 1-phenylcyclohexylpiperidine, Sernyl, Sernylan	Angel dust, Ozone, Wack, Rocket Fuel, Peter Pan, Lethal Weapon

GET IN TOUCH

+44 (0) 28 9445 1011

testingservices@randox.com

34 The Diamond Road,
Crumlin,
Co. Antrim,
Northern Ireland,
BT29 4QX

RANDOX
TESTING SERVICES

For more information contact:

testingservices@randox.com

randoxtestingservices.com

All information correct at time of print

LT7760RTSNOV20