

## QuickTox<sup>®</sup> Drug Screen Dipcard

COC/OPI/MET/THC/AMP/PCP/BZO/BAR/MTD/TCA/MDMA/OXY

This package insert covers combination test of cocaine, opiates, methamphetamine, THC, amphetamine, phencyclidine, benzodiazepines, barbiturates, methadone, tricyclic antidepressants, MDMA or oxycodone in QuickTox<sup>®</sup> devices.

### Intended Use

The QuickTox<sup>®</sup> Drug Screen Dipcard Test is an *in vitro* screen test for the rapid detection of multiple drugs and drug metabolites in human urine at or above the following cutoff concentrations:

COC	Benzoylcegonine	300 ng/ml †
OPI	Morphine	2000 ng/ml *†
		300 ng/ml *
MET	Methamphetamine	1000 ng/ml **†
		500 ng/ml **
THC	11-nor- $\Delta^9$ -Tetrahydrocannabinol-9-carboxylic acid	50 ng/ml †
AMP	Amphetamine	1000 ng/ml †
PCP	Phencyclidine	25 ng/ml †
BZO	Oxazepam	300 ng/ml
BAR	Secobarbital	300 ng/ml
MTD	Methadone	300 ng/ml
TCA	Nortriptyline	1000 ng/ml
MDMA	3,4-methylenedioxyamphetamine	500 ng/ml
OXY	Oxycodone	100 ng/ml

\* Opiates test can be provided at either 300 ng/ml or 2000 ng/ml

\*\* Methamphetamine test can be provided at either 500 ng/ml or 1000 ng/ml

† SAMSHA mandated cut-off concentration

The QuickTox<sup>®</sup> Drug Screen Dipcard Test provides visual qualitative results and is intended for professional *in vitro* diagnostic use only. It is not intended for over-the-counter sale to non-professionals.

**The QuickTox<sup>®</sup> Drug Screen Dipcard Test provides only preliminary analytical test results for drugs-of-abuse. For a quantitative result or to confirm positive results obtained by the QuickTox<sup>®</sup> Drug Screen Dipcard Test, a more specific alternative chemical method must be used. The Substance Abuse Mental Health Sources Administration (SAMHSA), formerly the National Institute on Drug Abuse (NIDA) has established Gas Chromatography/Mass Spectrometry (GC/MS) as the preferred confirmatory method.**

### Summary and Explanation

**COC:** Cocaine derived from the leaves of the coca plant, is a potent central nervous system stimulant, and has been used as a local anesthetic. Cocaine use induces euphoria, confidence, and a sense of increased energy; these psychological effects are accompanied by increased heart rate, pupil dilation, fever, tremors, and sweating. Cocaine is generally smoked or administered intravenously or orally. Cocaine base can be smoked in the form commonly known as "crack", which is likely to lead to dependence since the effect is more rapid and heightened. Cocaine is primarily excreted as benzoylcegonine and can generally be detected for 24–60 hours after cocaine use or exposure.<sup>2</sup>

**OPI:** Heroin, morphine and codeine are opiates that are derived from the resin of the opium poppy. Heroin is quickly metabolized to morphine. Thus, morphine and morphine glucuronide may both be found in the urine of a person who has taken only heroin. The body also converts codeine to morphine. Thus, the presence of morphine (or morphine metabolite) in the urine indicates heroin, morphine and/or codeine use. Generally, morphine and other opiates can be detected in the urine within 2 to 6 hours after use and remains detectable up to 3 days.<sup>2,3</sup> However, the length of time following drug use for which a positive result may occur is dependent upon several factors including the frequency and amount of usage, metabolic rate, excretion rate, drug half-life, and the drug user's age, weight, activity and diet.

**MET:** Methamphetamine is a potent sympathomimetic agent with therapeutic applications. Methamphetamine use in acute higher doses lead to enhanced stimulation of the central nervous system and induce euphoria, alertness, and a sense of increased energy and power. Methamphetamine is excreted in the urine as amphetamine and oxidized as deaminated derivatives. However, 40% of methamphetamine is excreted unchanged. Thus the presence of the parent compound in the urine indicates methamphetamine use. Methamphetamine can be detected in the urine within 4-6 hours after use and for 3-5 days, depending on urine pH level.<sup>2,3</sup>

**THC:** THC use may impair short-term memory and inhibit learning capacity. It may also alter mood and sensory perceptions, cause loss of coordination, induce anxiety, paranoia, hallucinations, depression, confusion, and increased heart rate. A tolerance to the cardiac and psychotropic effects can occur. Long-term

THC use may be associated with behavioral disorders. Withdrawal from marijuana use may produce restlessness, insomnia, anorexia, and nausea.

**AMP:** Amphetamine is chemically related to the human body's natural catecholamines, epinephrine, and norepinephrine. It has therapeutic applications and is a potent sympathomimetic agent. Amphetamine use in acute higher doses leads to enhanced stimulation of the central nervous system and induces euphoria, alertness, reduced appetite, and a sense of increased energy and power. Generally about 30% of amphetamine is excreted unchanged in 24-hour urine.

**PCP:** Phencyclidine is an atrychlohexylamine that is used as a veterinary anesthetic. It is used illegally as a hallucinogen, and is commonly referred to as PCP, angel dust, crystal cyclone, love boat, hog, or killer weed. PCP can produce lethargy, disorientation, and loss of coordination, visual distortion, euphoria, ataxia, and even coma. PCP can be taken orally, by nasal ingestion, smoking, or intravenous injection. It is metabolized in the liver and excreted through the kidneys. The half-life of phencyclidine is about three days.

**BZO:** Benzodiazepines are anxiolytic drugs that are most widely prescribed and used as anti-anxiety agents. They are also used as hypnotics, muscle relaxants and anti-convulsants. Some metabolites of Benzodiazepines also exhibit pharmacological activities. Use of Benzodiazepines can result in drowsiness and confusion; it also potentiates alcohol and other central nervous system depressants. Psychological and physical dependence on benzodiazepines can develop if higher doses of the drug are given over a prolonged period.<sup>1,2</sup> Benzodiazepines are taken orally or by injection. The drug is metabolized in the liver and excreted in the urine as the parent compound or as oxazepam (in the case of chlorodiazepoxide and diazepam). Oxazepam is detectable in the urine for up to 7 days.<sup>2,3</sup>

**BAR:** Barbiturates are a class of central nervous system depressants. Phenobarbital has been used as a daytime sedative and extensively as an anticonvulsant. Phenobarbital is an example of long acting barbiturate derivative while Pentobarbital and Secobarbital are examples of short acting barbiturate sedatives. Barbiturate abuse can lead not only to impaired motor coordination and mental disorder, but also to respiratory collapse, coma and even death. Short acting barbiturates will generally be excreted in urine as metabolites, while long acting barbiturates will primarily appear unchanged. Barbiturates normally remain detectable in urine for 4 to 6 days after use (up to 30 days for Phenobarbital).<sup>2,3</sup>

**MTD:** Methadone is a synthetic analgesic drug that is originally used for the treatment of narcotic addiction. Methadone use induced psychological effects such as analgesia, sedation and respiratory depression. Overdose of methadone may cause coma or even death. Methadone is taken orally or intravenously and is metabolized in the liver. The major route of methadone excretion is in the urine. The effects of methadone last up to 24 hours after use and can be detected in the urine up to 14 days.<sup>2,3</sup> The length of time following drug use for which a positive result may occur is dependent upon several factors including the frequency and amount of drug, metabolic rate, excretion rate, drug half-life, and the user's age, weight, activity and diet.

**TCA:** Tricyclic antidepressants (TCAs) are a type of prescription drugs used for the treatment of depressive disorders. Tricyclic Antidepressants consist of two main chemical classes. The tertiary amines boost serotonin levels and are usually prescribed for insomnia, irritability and overstimulation; these include amitriptyline, imipramine, trimipramine and doxepin. The secondary amines, which include nortriptyline, desipramine and protriptyline, enhance norepinephrine levels and are prescribed for fatigue; withdrawal and inertness.<sup>4,5</sup> TCA abuse can result in respiratory depression, convulsions, blood pressure deviation, severe cardiac conditions, and coma. TCAs are taken orally or sometimes by injection. TCAs are excreted in the urine mostly in the form of metabolites for up to ten days.

**MDMA:** 3,4-methylenedioxyamphetamine (MDMA) is a synthetic drug that is chemically related to the amphetamine family of compounds. MDMA has been available as a street drug since the 1980s, however, since the 1990s its use has increased, particularly among teenagers and young adults. The drug has street names that include "Ecstasy, XTC, Clarity, Essence and Adam". MDMA is typically available in tablet form containing appropriately 60-150 milligrams of MDMA. The common method of use is oral ingestion, although the powder form can be snorted and occasionally smoked. MDMA has properties of both stimulants and hallucinogens. The effects of the drug last up to 6 hours after oral ingestion. The adverse effects include elevated blood pressure, increased heart rate, hyperthermia, dehydration, anxiety, paranoia and insomnia. The detection period of MDMA in urine is 1-3 days for single use and up to 5 days for heavy use.<sup>1</sup>

**OXY:** Oxycodone is a synthetic analgesic drug administered orally for the relief of pain. The major route of oxycodone excretion is in the urine. The effects of oxycodone last up to 4 hours after use. The length of time following drug use for which a positive result may occur is dependent upon several factors including the frequency and amount of usage, metabolic rate, excretion rate, drug half-life, and the drug user's age, weight, activity, and diet.<sup>2,3</sup>

### Test Principle

Urine based screening tests for drugs-of-abuse are available from simple immunoassay tests to complex analytical procedures. Due to speed and sensitivity, immunoassays have become the most widely accepted method for urine-based drugs-of-abuse screening tests. The QuickTox<sup>®</sup> family of urine drug

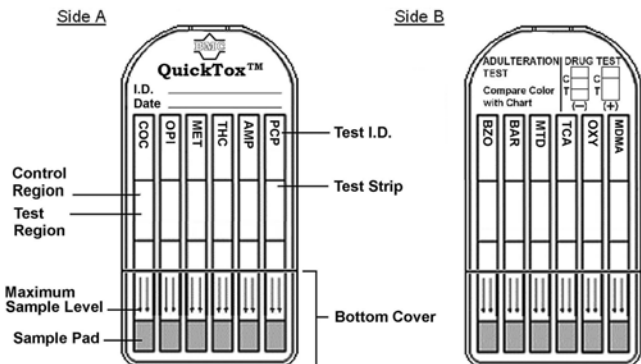
screen tests is based on the principle of the highly specific immunochemical reactions between antigens and antibodies. The QuickTox<sup>®</sup> Drug Screen Dipcard Test is based on a competitive immunoassay procedure in which immobilized drug conjugates compete with the drug(s) present in urine for limited antibody binding sites. The test device consists of individual test strips assembled into separate chambers of a plastic insert. On each membrane strip, a drug conjugate is pre-coated at a specific region known as the test region. A colored antibody-colloidal gold conjugate is coated onto a pad and placed at one end of the membrane strip. In the test procedure, the QuickTox<sup>®</sup> Drug Screen Dipcard test device is dipped into a urine sample. This allows the urine into contact with the sample pads of the QuickTox<sup>®</sup> Drug Screen Dipcard test device. The urine then migrates across the membrane by capillary action. If any drug is present in the urine, it competes with the drug conjugate, which is immobilized on the membrane for the limited binding sites on the colored antibody colloidal gold conjugate. When a sufficient amount of drug is present, the drug will saturate the antibody binding sites and the colored colloidal gold conjugate cannot bind to the drug conjugate on the membrane. The absence of a color band at a specific test region indicates a positive result for that particular test. If there is no drug or drug metabolite present to compete for the binding sites of the colored colloidal gold conjugate, it binds to the immobilized drug conjugate to form a visible band at the specific test region of the membrane. The presence of a color band at a specific test region indicates a negative result for that particular test.

A control band with a different antigen/antibody reaction is added to the immunochromatographic membrane strip at the control region (C) to indicate that the test performed properly. This control band should always appear regardless of the presence of drug or metabolite.

### Reagents

Protein conjugate for benzoylecgonine, morphine, methamphetamine, THC, amphetamine, phencyclidine, benzodiazepine, barbiturate, methadone, nortriptyline, MDMA or oxycodone is coated onto the test region of the membrane.

The colored conjugate pad for each strip contains monoclonal antibodies for benzoylecgonine, morphine, methamphetamine, THC, amphetamine, phencyclidine, benzodiazepine, barbiturate, methadone, tricyclic antidepressant, MDMA or oxycodone.



\*Note: The above illustration depicts 12 drug test QuickTox<sup>®</sup> Drug Screen Dipcard, Catalog No. QT80

### Materials Provided

Each QuickTox<sup>®</sup> Drug Screen Dipcard Test Kit contains:

- 1 Package Insert (directions for use).
- 25 QuickTox<sup>®</sup> test devices. Each test device is packaged with a desiccant and sealed in a foil pouch.

### Warnings and Precautions

- FOR *IN VITRO* DIAGNOSTIC USE ONLY
- For professional use only.
- The test device should remain in its original sealed pouch until ready for use. Discard the test device if package is ripped or torn.
- Handle all urine specimens as if potentially infectious. Proper handling and disposal methods should be established.
- Avoid cross-contamination of urine samples by using a new specimen collection container for each urine sample.

### Product Storage

The QuickTox<sup>®</sup> Drug Screen Dipcard Test should be stored at room temperature (15°–30°C) until the expiration date on the label. Do not open pouch until ready to perform the assay.

### Specimen Collection and Handling

QuickTox<sup>®</sup> Drug Screen Dipcard Tests are formulated for use with urine specimens. Use only freshly voided, untreated urine.<sup>4</sup> Do not centrifuge or add preservatives to urine. Urine samples should be collected so that testing may be performed as soon as possible, preferably during the same day. Specimens that have been refrigerated must be brought to room temperature prior to testing. Previously frozen specimens must be thawed, brought to room temperature, and mixed thoroughly prior to testing.

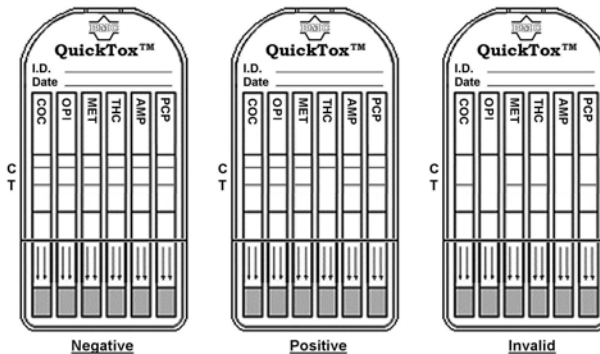
**Note:** All materials coming in contact with urine specimens should be handled and disposed of as if potentially infectious. Avoid contact and follow good laboratory practice.

### Test Procedure

**IMPORTANT:** Donor sample (urine specimen) should be brought to room temperature (15°–30°C) prior to testing. Do not open pouch until ready to perform the assay.

- Collect urine in a collection cup.
- Remove the test device from the sealed pouch by tearing at the notch.
- Detach the bottom cover and dip the sample pads of the QuickTox<sup>®</sup> Drug Screen Dipcard Test device straight into the urine. Dip for a minimum of 10 seconds. **Dip up to, but not beyond the tip of the arrows.**
- Remove the QuickTox<sup>®</sup> Drug Screen Dipcard Test device from the sample and re-attach the bottom cover.
- Once the control band (C) appears (in 5 minutes or less) results are ready to interpret. Results are stable and may be interpreted up to 1 hour after the control bands form.

### Interpretation of Results



\*Note: The above results are for illustration purposes only, see the explanations below for interpretation of results.

**Negative:** The presence of a colored band at the control region (C) and a colored band at a specific test region regardless of the intensity indicate that the result is negative for that particular test.

**Positive:** The presence of a colored band at the control region (C) and the absence of a colored band at the test region indicate a positive result for that particular test.

**Invalid:** No band appears at the control region (C). The test is inconclusive even if there is a band in the test region. If the test device does not produce a band at the control region, check testing procedures, samples, and/or control materials, and repeat the test using a new device.

**Important:** Read each test independently. Do not compare color intensity of one test to another. Samples with faint test bands at the test regions should be considered negative. The QuickTox<sup>®</sup> Drug Screen Dipcard Test provides qualitative results for the presence of drug(s) at specified cut-off concentrations. It is recommended that samples with questionable test bands and positive results be confirmed with a more specific quantitative method (Gas Chromatography/Mass Spectrometry).

### Quality Control

**Internal control:** The QuickTox<sup>®</sup> Drug Screen Dipcard test device has built-in internal procedural controls. The appearance of the control bands (C) is considered an internal procedural control. This band should always appear if adequate sample volume is used and the testing procedure is followed. Additionally, the background color should become clear and provide distinct test results. If the control bands (C) do not appear then the test is invalid. The test should be repeated using a new device.

**External control:** It is recommended that negative and positive urine controls be used to initially test each new lot of product to ensure proper kit performance. The same assay procedure should be followed with external control materials as with a urine specimen. When external controls do not produce the expected results, do not run test specimens. Follow the proper federal, state and local guidelines when running external controls.

**Quality control testing at regular intervals is a good laboratory practice and may be required by federal, state or local guidelines. Always check with the appropriate licensing or accrediting bodies to ensure that the quality program employed meets the established standards.**

### Limits of Procedure

- The assay is designed for use with human urine only.
- Positive results only indicate the presence of drug/metabolites and do not indicate or measure intoxication.
- There is a possibility that technical or procedural errors as well other substances in certain food and medication may interfere with the test and cause false results. See Specificity section for the list of substances that

will produce either positive results, and Interference section for the list of components that do not interfere with test performance.

- If a drug/metabolite is found present in the urine specimen, the assay does not indicate frequency of drug use or distinguish between drugs of abuse and certain food and/or medication.
- If it is suspected that the sample may have been mislabeled a new specimen should be collected.
- If it is suspected that the sample may have been tampered, a new specimen should be collected.

### Performance Characteristics

#### Precision

For each specific drug test, drug-free normal urine was spiked with drug standards to various concentrations (-50%, -25%, +25% and +50%). For each concentration, a total of 25 tests were performed to validate the test performance around the cut-off concentration. The results for each drug test in the QuickTox® Drug Screen Dipcard are summarized below:

Drug Test	Total # of Test / Conc.	Concentration											
		-50%			-25%			+25%			+50%		
		-	+/-	+	-	+/-	+	-	+/-	+	-	+/-	+
COC	25	25	0	0	25	0	0	0	2	23	0	0	25
OPI2000	25	25	0	0	25	0	0	0	0	25	0	0	25
OPI300	25	25	0	0	25	0	0	0	1	24	0	0	25
MET1000	25	25	0	0	24	1	0	0	2	23	0	0	25
MET500	25	25	0	0	25	0	0	0	0	25	0	0	25
THC	25	25	0	0	25	0	0	0	0	25	0	0	25
AMP	25	25	0	0	24	1	0	0	1	24	0	0	25
PCP	25	25	0	0	25	0	0	0	0	25	0	0	25
BZO	25	25	0	0	24	1	0	0	2	23	0	1	24
BAR	25	25	0	0	25	0	0	0	4	21	0	0	25
MTD	25	25	0	0	25	0	0	0	2	23	0	1	24
TCA	25	25	0	0	25	0	0	0	2	23	0	0	25
MDMA	25	25	0	0	23	2	0	0	3	22	0	0	25
OXY	25	25	0	0	22	3	0	0	4	21	0	0	25

#### Accuracy

The accuracy of the QuickTox® Drug Screen Dipcard Test device was evaluated in comparison to the results from GC/MS analysis or predicate method using commercially available immunoassay. 40 presumed negative urine samples were collected from volunteer donors and tested with both the QuickTox® Drug Screen Dipcard and the predicate method. Of the 40 presumed negative urine samples tested, all were found negative by both methods (100% agreement).

Additionally, for each drug test on the QuickTox® Drug Screen Dipcard Test device, a minimum of 40 clinical urine samples previously analyzed by GC/MS method with known concentration(s) of drug(s) values were blind labeled and evaluated. The results are summarized below:

Drug Test		GC/MS Neg. (below C/O)	GC/MS Near Pos. (+25% to C/O)	GC/MS Pos. (> +25%)	% Agreement w/ GC/MS	
					Neg (-)	Pos (+)
		COC	Pos. (+)	0	26	13
	Neg. (-)	21	1	0		
OPI300	Pos. (+)	0	5	35	100%	100%
	Neg. (-)	5	0	0		
OPI2000	Pos. (+)	0	4	35	100%	98%
	Neg. (-)	3	1	0		
MET500	Pos. (+)	0	4	36	100%	100%
	Neg. (-)	3	0	0		
MET1000	Pos. (+)	0	5	35	100%	98%
	Neg. (-)	6	1	0		
THC	Pos. (+)	0	4	35	100%	98%
	Neg. (-)	12	1	0		
AMP	Pos. (+)	0	7	32	100%	98%
	Neg. (-)	5	1	0		
PCP	Pos. (+)	0	9	30	100%	98%
	Neg. (-)	7	1	0		
BZO	Pos. (+)	0	5	34	100%	98%
	Neg. (-)	6	1	0		
BAR	Pos. (+)	0	6	32	100%	100%
	Neg. (-)	7	0	0		
MTD	Pos. (+)	0	4	74	100%	98%
	Neg. (-)	14	2	0		
TCA*	Pos. (+)	0	4	35	100%	98%
	Neg. (-)	6	1	0		
MDMA	Pos. (+)	0	4	32	100%	100%
	Neg. (-)	4	0	0		
OXY	Pos. (+)	0	4	29	100%	100%
	Neg. (-)	12	0	0		

\* TCA clinical urine samples were based on HPLC values

#### Specificity

The specificity study for each of the drug test of the QuickTox® Drug Screen Dipcard Test device was evaluated separately by adding structurally related compounds to normal human urine. The results are expressed as the amount in ng/ml of the compound that was observed to produce a positive result.

#### COC 300 ng/ml

Compound	ng/ml	Compound	ng/ml
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Benzoylcegonine 300 Ecgonine 100,000

#### OPI 300 ng/ml

Compound	ng/ml	Compound	ng/ml
6-Acetylmorphine	500	Hydrocodone	1,000
Codeine	300	Hydromorphone	400
Dihydrocodeine	500	Morphine	300
Ethyl morphine	300	Morphine-3-β-D-Glucuronide	500
Heroin	100	Nalorphine	5,000

#### OPI 2000 ng/ml

Compound	ng/ml	Compound	ng/ml
6-Acetylmorphine	2,000	Hydrocodone	5,000
Codeine	2,000	Hydromorphone	2,500
Dihydrocodeine	2,000	Morphine	2,000
Ethyl morphine	2,000	Morphine-3-β-D-Glucuronide	5,000
Heroin	2,000	Nalorphine	20,000

#### MET 500 ng/ml

Compound	ng/ml	Compound	ng/ml
Ephedrine	10,000	l-Methamphetamine	25,000
p-Hydroxymethamphetamine	1,750	Procaine	50,000
3,4-MDMA	1000	Trimethobenzamide	75,000
d-Methamphetamine	500		

#### MET 1000 ng/ml

Compound	ng/ml	Compound	ng/ml
Ephedrine	50,000	d-Methamphetamine	1,000
p-Hydroxymethamphetamine	10,000	l-Methamphetamine	50,000
3,4-MDMA	1000	Procaine	100,000

#### THC 50 ng/ml

Compound	ng/ml	Compound	ng/ml
Cannabidiol	100,000	11-hydroxy-Δ9-THC	2,500
Cannabinol	50,000	Δ-8-tetrahydrocannabinol	7,000
11-nor-Δ-8-THC-9-COOH	50	Δ-9-tetrahydrocannabinol	10,500
11-nor-Δ-9-THC-9-COOH	50		

#### AMP 1000 ng/ml

Compound	ng/ml	Compound	ng/ml
d-Amphetamine	1,000	Phentermine	3,000
l-Amphetamine	25,000	β-Phenylethylamine	100,000
3,4-MDA	5,000		

#### PCP 25 ng/ml

Compound	ng/ml
Phencyclidine	25

#### BZO 300 ng/ml

Compound	ng/ml	Compound	ng/ml
Alprazolam	150	Lorazepam	1,500
Bromazepam	800	Lormetazepam	1,000
Chlordiazepoxide	2,000	Medazepam	2,000
Clobazam	200	Nitrazepam	1,000
Clonazepam	4,000	Nordiazepam	100
Delorazepam	6,000	Oxazepam	300
Diazepam	150	Prazepam	1,000
Estazolam	300	Temazepam	150
Flunitrazepam	1,000	Triazolam	1,500
Flurazepam	300		

#### BAR 300 ng/ml

Compound	ng/ml	Compound	ng/ml
Alphenal	400	Butalbital	3,000
Allobarbitol	1,500	Butethal	400
Amobarbitol	1,500	Pentobarbitol	400
Aprobarbitol	400	Secobarbitol	400
Barbital	400		
Butabarbitol	400		

#### MTD 300 ng/ml

Compound	ng/ml	Compound	ng/ml
2-Ethylidene-1.5-Dimethyl		Methadone	300
-1,3-Diphenylpyrrolidine	50,000	Pheniramine	75,000
Doxylamine	50,000		

#### TCA 1000 ng/ml

Compound	ng/ml	Compound	ng/ml
Amityptiline	1,000	Nordoxepin	1,000
Clomipramine	7,500	Nortriptyline	1,000
Cyclobenzaprine	1,500	Perphenazine	50,000
Desipramine	750	Promazine	10,000
Doxepin	1,000	Protryptiline	350
Imipramine	750	Trimipramine	1,500

#### MDMA 500 ng/ml

Compound	ng/ml	Compound	ng/ml
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3,4-MDA	2,000	3,4-MDMA	500
3,4-MDEA	250	d-Methamphetamine	50,000

**OXY 100 ng/ml**

Compound	ng/ml	Compound	ng/ml
Codeine		Oxycodone	
10,000		100	
Hydrocodone		Hydromorphone	25,000
600			

The effects of pH and specific gravity of the specimen on the performance of the drugs-of-abuse tests at cutoff level were tested. Results obtained were acceptable and not affected by any urine samples with pH range of 4.5 to 8.5 and specific gravity range of 1.005 to 1.030.

**Interferences**

Various drugs, drug metabolites, and other constituents commonly found in urine were evaluated for interferences and cross-reactivity. The following compounds were found not to cross-react with the QuickTox® Drug Screen Dipcard Test device when tested at concentrations of 100 µg/ml (100,000 ng/ml):

Acetaminophen (4-Acetamidophenol; APAP; N-Acetyl-p-aminophenol)	Ibuprofen
Acetone	Imipramine (except TCA assay)
6-Acetylmorphine (except OPI assay)	(-) Isoproterenol
Acetylsalicylic acid (Aspirin)	(+/-) Isoproterenol
Albumin	Lidocaine
Allobarbitol (except BAR assay)	Lorazepam (except BZO assay)
Alphenal (except BAR assay)	Lormetazepam (except BZO assay)
Alprazolam (except BZO assay)	Medazepam (except BZO assay)
Aminopyrine	Meperidine
Amitriptyline (except TCA assay)	Methadone (except MTD assay)
Amobarbital (except BAR assay)	(+/-) Methadone
Amoxapine	Methamphetamine (except MET assay)
Amoxicillin	Methaqualone
Aprobarbital (except BAR assay)	Methoxyphenamine
d-Amphetamine (except AMP assay)	N-Methyl-Ephedrine
l-Amphetamine (except AMP assay)	(1R,2S) N-Methyl-Ephedrine
Ampicillin	2-Methylamine-Propiophenone
Apomorphine	11-nor-Δ-9-THC-9-Carboxylic Acid (except THC assay)
l-Ascorbic Acid (Vitamin C)	(+/-) 3,4-Methylenedioxymethamphetamine (except MET & MDMA assays)
Aspartame	(+/-) 3,4-Methylenedioxyamphetamine (except AMP & MDMA assays)
Aspartamine	Methylphenidate
Atropine	Morphine (except OPI assay)
Barbital (except BAR assay)	Morphine-3-β-D-Glucuronide (except OPI assay)
Benzilic acid	Nalidixic acid
Benzocaine (Ethyl p-Aminobenzoate)	Nalorphine (except for OPI assay)
Benzoic acid	Naloxone
Benzoylcegonine (except COC assay)	(+) Naproxen
Benzphetamine	Niacinamide
Bilirubin	Nitrazepam (except BZO assay)
Bromazepam (except BZO assay)	Nordiazepam (except BZO assay)
(+) Brompheniramine	Nordoxepin (except TCA assay)
Butabarbital (except BAR assay)	(+/-) Norephedrine
Butalbital (except BAR assay)	(+/-) Norephedrine-(+)
Butethal (except BAR assay)	Phenylpropanolamine
Caffeine	Norethindrone
Cannabidiol (except THC assay)	D-Norpropoxyphene
Cannabinol (except THC assay)	Nortriptyline (except TCA assay)
Chloralhydrate	Oxalic Acid
Chlordiazepam-HCl-Di(H <sub>2</sub> O)	Oxazepam (except BZO assay)
Chlordiazepoxide (except BZO assay)	Oxolinic acid
Chloroquine	Oxycodone (except OXY assay)
(+) Chlorpheniramine	Papaverine
(+/-) Chlorpheniramine	Penicillin-G (Benzylpenicillin)
l-Chlorpheniramine	Penicillin-G Phentermine
Chlorpromazine	Pentazocaine
Cholesterol	Pentobarbital (except BAR assay)
Clobazam (except BZO assay)	Perphenazine (except TCA assay)
Clomipramine (except TCA assay)	Phencyclidine (except PCP assay)
Clonazepam (except BZO assay)	Pheniramine (except MTD assay)
Codeine (except OPI & OXY assays)	Phenobarbital (except BAR assay)
Cortisone	Phenothiazine (Thiodiphenylamine)
(-) Cotinine	Phentermine (except AMP assay)
Creatine	Phenylephrine
Creatinine	β-Phenylethylamine (except AMP assay)
Cyclobenzaprine (except TCA assay)	Prednisolone
Delorazepam (except BZO assay)	Prazepam (except BZO assay)
Deoxycorticosterone	Procaine
Desipramine (except TCA assay)	Promazine (except TCA assay)
Desmethyldiazepam	Promethazine
Dexbrompheniramine	d-Propoxyphene
Dextromethorphan	
Diazepam (except BZO assay)	
4-Dimethylaminoantipyrine	
Diphenhydramine	
Dopamine (3-Hydroxytyramine)	
Doxepin (except TCA assay)	

Doxylamine (except MTD assay)	Protriptyline (except TCA assay)
Dihydrocodeine (except OPI assay)	d-Pseudoephedrine
Ecgonine (except COC assay)	Pyrolidine
Ecgonine Methyl Ester	Quinidine
(-) Ephedrine	Quinine
(-) Epinephrine	Ranitidine
(+) Epinephrine	Riboflavin
(+/-) Ephedrine (except MET assay)	Salicylic acid
Erythromycin	Secobarbital (except BAR assay)
Estazolam (except BZO assay)	Serotonin
β-Estradiol	Sodium Chloride
Estrone-3-Sulfate	Sulfamethazine
Ethanol	Sulindac
Ethyl Morphine (except OPI assay)	Temazepam (except BZO assay)
Ethyl-p-aminobenzoate	Tetracycline
2-Ethylidene-1.5-Dimethyl-1.3.3-Diphenylpyrrolidone (except MTD assay)	Δ8-THC (except THC assay)
Flunitrazepam (except BZO assay)	Δ9-THC (except THC assay)
Flurazepam (except BZO assay)	11-Nor-Δ8-THC-9-Carboxylic Acid (except THC assay)
Furosemide	Tetrahydrocortisone
Gentisic acid	Thiamine
Glucose	Thioridazine
Glutethimide	Triazolam (except BZO assay)
Guaiacol Glyceryl Ether	Trifluoperazine
Hemoglobin	Trimethobenzamide (except MET500 assay)
Heroin (except OPI assay)	Trimipramine Maleate (except TCA assay)
Hippuric acid	Tryptamine
Hydrochlorothiazide	d,l-Tryptophan
Hydrocodone (except OPI & OXY assays)	Tyramine
Hydrocortisone	d,l-Tyrosine
Hydromorphone (except OPI & OXY assays)	Uric Acid
p-Hydroxymethamphetamine (except MET assay)	Verapamil
3-Hydroxytyramine	Zomepirac
11-Hydroxy-Δ-9-THC (except THC assay)	

**Bibliography of Suggested Reading**

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