



**INTRODUCTION**

**TO DRUG TESTING**



# LEGAL DISCLAIMER

This content is shared for informational purposes only and does not constitute legal advice, either express or implied.

You should work with qualified counsel to understand your legal obligations.

# AGENDA

**01**

## **Drug Panel Basics**

All about substances, cutoffs, and validity testing

**02**

## **Specimen Types**

What types are there and what are the benefits?

**03**

## **Collection**

What is a chain of custody?

**04**

## **Lab Analysis**

What does the testing process entail?

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## **MRO Review**

What is the Medical Review Officer responsible for?

**06**

## **Results**

Result types and what they mean

**07**

## **Key Callouts for Sales**

Things to keep in mind



# DRUG PANEL BASICS





# SUBSTANCES

## DRUG CLASSES & METABOLITES

A drug panel will be made up of a number of selected **drug classes**. Individual drug classes may contain particular **metabolites** for the class.

### Panel Example

For this panel, the **Opiates drug class** is comprised of **Morphine & Codeine metabolites**.

DRUG CLASS	INITIAL TEST LEVEL	CONFIRMATORY TEST LEVEL	CONFIRMATORY METHOD
AMPHETAMINES	500 ng/mL		
Amphetamine		250 ng/mL	MS
Methamphetamine		250 ng/mL	MS
COCAINE METABOLITES	150 ng/mL	100 ng/mL	MS
MDA-ANALOGUES	500 ng/mL		
MDA		250 ng/mL	MS
MDMA		250 ng/mL	MS
MDEA		250 ng/mL	MS
OPIATES	2000 ng/mL		
Morphine		2000 ng/mL	MS
Codeine		2000 ng/mL	MS
6-ACETYLMORPHINE	10 ng/mL	10 ng/mL	MS
PHENCYCLIDINE	25 ng/mL	25 ng/mL	MS

TestSure™

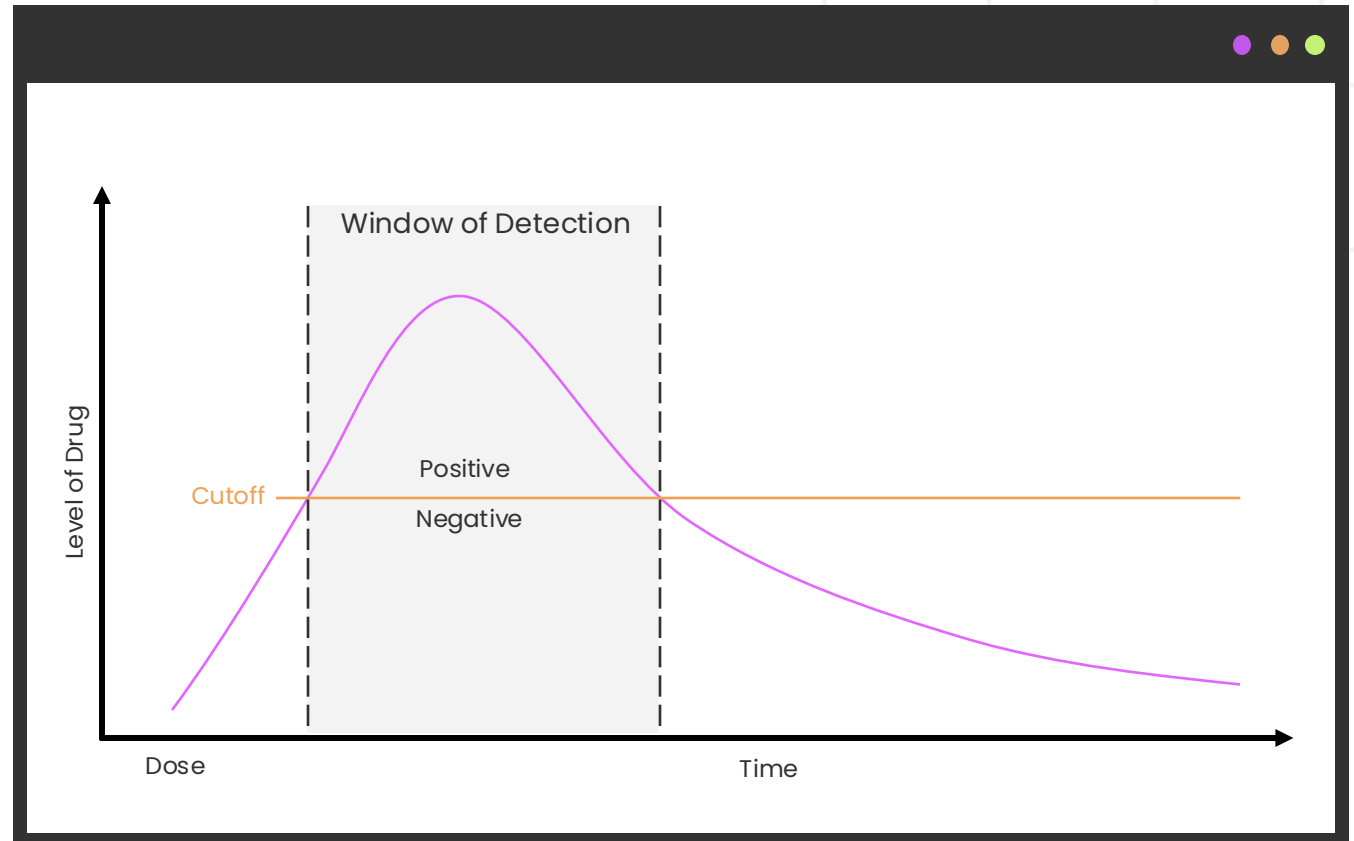
# CUTOFF LEVELS



## WHAT IS A CUTOFF LEVEL?

A cutoff level is a preset value that is used to determine a positive or negative result. The concentration of a substance found in a specimen is compared against the respective cutoff level. If the concentration is below the cutoff, the result is negative, and if it is above the cutoff, the result is positive.

Lower cutoff levels are **stricter** than higher cutoff levels.



# CUTOFF LEVELS

## INITIAL & CONFIRMATORY

### WHY ARE THERE TWO DIFFERENT CUTOFFS?

Each substance will be tested against its respective **Initial Testing** cutoff level.

If the concentration found in the specimen is above this initial cutoff level (indicating a positive), it will be subjected to **Confirmatory Testing**.

Confirmatory cutoff levels are often lower (stricter) than the initial cutoff levels.

DRUG CLASS	INITIAL TEST LEVEL	CONFIRMATORY TEST LEVEL	CONFIRMATORY METHOD
AMPHETAMINES	500 ng/mL		
Amphetamine		250 ng/mL	MS
Methamphetamine		250 ng/mL	MS
COCAINE METABOLITES	150 ng/mL	100 ng/mL	MS
MDA-ANALOGUES	500 ng/mL		
MDA		250 ng/mL	MS
MDMA		250 ng/mL	MS
MDEA		250 ng/mL	MS
OPIATES	2000 ng/mL		
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Codeine		2000 ng/mL	MS
6-ACETYLMORPHINE	10 ng/mL	10 ng/mL	MS
PHENCYCLIDINE	25 ng/mL	25 ng/mL	MS
TestSure™			



# SPECIMEN VALIDITY TESTING (SVT)

## What is SVT?

Specimen Validity Testing helps ensure the integrity of urine drug screens by measuring three (3) different attributes of the urine specimen. Each attribute is compared against a value range that is considered acceptable or normal for human urine.

## Lab Report Example

Tests Ordered: 28236N

### Integrity Checks

### Acceptable Range

CREATININE	223.2 mg/dL	>= 20 mg/dL
pH	5.5	4.5-8.9
OXIDIZING ADULTERANTS	Negative	

\*Component definitions on next slide

# SPECIMEN VALIDITY TESTING

## WHAT ARE THE THREE COMPONENTS?

### Creatinine

Creatinine is naturally produced in the body and expelled via urine. The concentration found in the specimen is compared to what is considered normal for human urine.

### pH

Tests the acidity or alkalinity of the urine specimen and compares it to what is expected for normal human urine.

### Oxidizing Adulterants

Various substances that work to oxidize drugs or drug metabolites, preventing their detection, or inhibit the reagents used in initial or confirmatory testing.

Adulterant examples: Bleach, Nitrites, Peroxide.



# SPECIMEN

# TYPES

# SPECIMEN TYPES

## URINE, ORAL FLUID, BLOOD, & HAIR

Urine drug testing is the most common method due to its convenience, dependability, availability, and price. However, depending on the goal of the substance abuse test, other specimen types could be a better option.

### Urine

Most popular and widely used due to its convenience, dependability, availability, and price. Approved for federal and DOT testing.

### Oral Fluid

Inexpensive, easy to collect, and nearly impossible to cheat. It has a short detection window of up to 48 hours and results are almost immediate.

### Hair

Very long detection window of weeks, months, or even years. However, drug use may not appear in the hair until 7-10 days after exposure and cannot detect current intoxication.

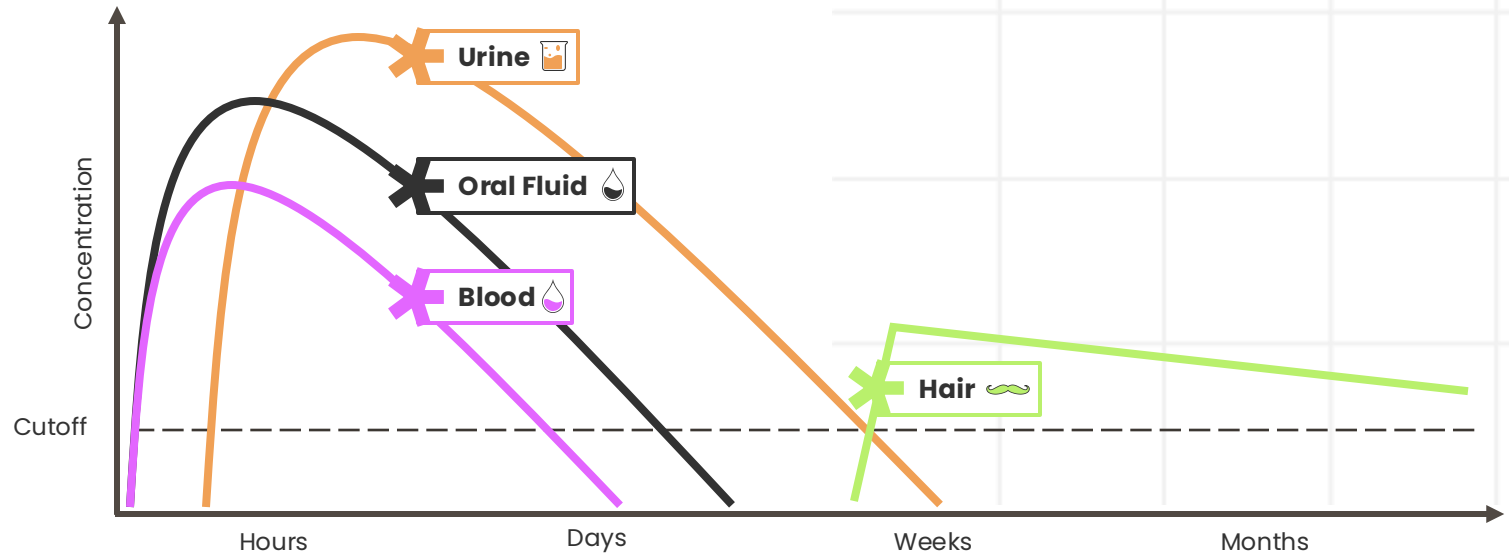
### Blood

Can only be administered by a skilled professional and therefore cannot be cheated. It can precisely detect ethanol levels if testing for alcohol. However, it is the most expensive testing method.



# SPECIMEN TYPES

## DETECTION WINDOWS



Very Recent  
24-40  
Hours



Oral Fluid

Recent  
24-72  
Hours



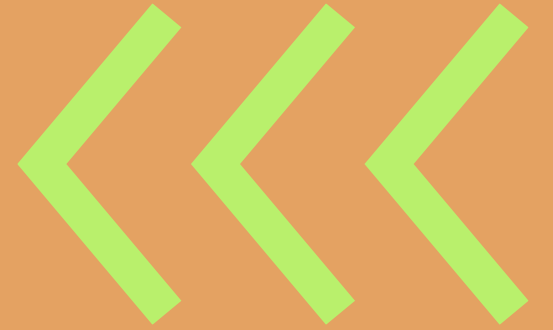
Urine

Repetitive  
Up to  
90 Days



hair





# COLLECTION



5343111491 **FEDERAL DRUG TESTING CUSTODY AND CONTROL FORM**  
 1111 Newton Street, Gretna, LA 70053 | Phone: 504-361-8989 | Fax: 504-361-8298

**Alere** **LAB NUMBER**

57329697 **AIRBILL NUMBER** **SPECIMEN ID NUMBER 57329697**

**STEP 1: To be completed by Collector or Employer Representative**

**A. Employer Name, Address, ID No.**  
 DEPARTMENT NAME / DOT  
 STREET ADDRESS  
 CITY, STATE, ZIP CODE  
 PHONE # FAX #

**B. MRO Name, Address, Phone No., and Fax No.**  
 VON STEIFF, FRED MD  
 2477 PACHECO STREET  
 CONCORD, CA 94520  
 (925) 674-8080 (925) 671-8133

**2. Donor SSN or Employee I.D. No.:**

**3. Specify Testing Authority:**  HHS  NRC  DOT - Specify DOT Agency:  FMCSA  FAA  FRA  FTA  PHMSA  USCG

**4. Reason for Test:**  Pre-Employment  Random  Reasonable Suspicion/Cause  Post Accident  Return to Duty  Follow-up  Other (specify):

**5. Drug Tests to be Performed:**  THC, COC, PCP, OPI, & AMP  THC & COC Only  Other (specify):

**3. Collection Site Address:**

Collector Phone No.:  
 Collector Fax No.:

**STEP 2: To be completed by Collector (Make Remarks when appropriate):** Collector reads temperature within 4 minutes.  
 Is temperature between 90° and 100°F?  Yes  No, Enter Remark  
 Collection:  Split  Single  None Provided, Enter Remark  Observed, Enter Remark

Remarks:

**STEP 3: Collector affixes bottle seal(s) to bottle(s). Collector dates seal(s). Donor seals seal(s). Donor completes STEP 5 on Copy 2 (MRO Copy).**

**STEP 4: Chain of Custody - Initiated by Collector and completed by Test Facility**

I certify that the specimen given to me by the donor identified in the certification on Copy 2 of this form was collected, labeled, sealed and released to the Delivery Service noted in accordance with applicable Federal requirements.

PRINT Collector Name (First, MI, Last) Date collected (Mo/Dy/Yr)  
 X Signature of Collector Collected:  AM  PM Name of Delivery Service

**Received at Lab or IITF:**  
 X Signature of Accession Primary Specimen Bottle Seal Intact?  Yes  No  
 PRINT Accessioner's Name (First, MI, Last) Date (Mo/Dy/Yr) No, enter remark in Step 5A. SPECIMEN BOTTLE(S) RELEASED TO:

**STEP 5A: Primary Specimen Report to be completed by Test Facility**

**NEGATIVE**  **POSITIVE for:**  Marijuana, Metabolite (THC)  6-Acetylmorphine  Methamphetamine  MDMA  
 DILUTE  Cocaine, Metabolite (BAC)  Morphine  Amphetamine  MDA  
 REJECTED  ADULTERATED  SUBSTITUTED  Codeine  MDEA  
 INVALID RESULT

Remarks:

Test Facility (if different from above):  
 I certify that the specimen identified on this form was examined upon receipt, handled using chain of custody procedures, analyzed, and reported in accordance with applicable Federal requirements.

X Signature of Certifying Technician/Scientist PRINT Certifying Technician/Scientist Name (First, MI, Last) Date (Mo/Dy/Yr)

**STEP 5B: To be completed by Split Testing Laboratory**

RECONFIRMED  FAILED TO RECONFIRM - REASON:

Laboratory Name  
 Laboratory Address

I certify that the specimen identified on this form was examined upon receipt, handled using chain of custody procedures, analyzed, and reported in accordance with applicable Federal requirements.

X Signature of Certifying Scientist PRINT Certifying Scientist Name Date (Mo/Dy/Yr)



# COLLECTION

## CHAIN OF CUSTODY FORM (COC OR CCF)

All drug test collections will initiate with a Chain of Custody Form.

The form documents all essential information regarding the drug test and requires signatures from both the collector and donor.

The form ensures specimen integrity and accountability of the test sample.





**LAB**

**ANALYSIS**



# LAB ANALYSIS

## SCREENING & CONFIRMATION

### How does Lab Analysis work?

Lab Analysis for drug testing can be divided into two categories: screening and confirmation. **Screening tests (Immunoassay)** are a lower sensitivity methodology that occurs as a “first sweep” in drug detection. If the screening test detects a potential positive, the specimen will undergo a confirmation test. **Confirmation testing (GC/MS)** utilizes a definitive testing method to confirm the findings of the initial screening.

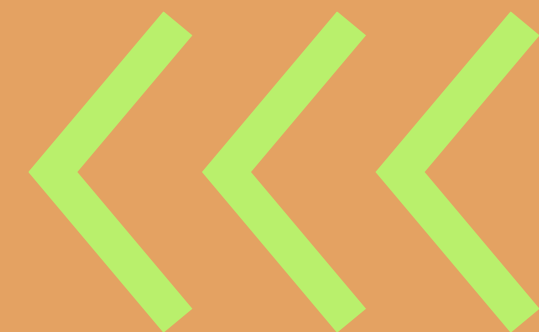
### Immunoassay

This is the testing methodology that rapid drug screens go through, for instance. This is a lower sensitivity test used for preliminary screening.

### GC/MS or LC/MS

The definitive testing methodology utilized in confirmation testing. The acronyms stand for Gas or Liquid Chromatography/Mass Spectrometry.





# MRO Review



# MRO REVIEW

## MEDICAL REVIEW OFFICER

### What does the MRO do?

A Medical Review Officer (MRO) receives and reviews non-negative drug test results and evaluates whether the result has a justifiable medical reason. The MRO will also determine whether a sample has been adulterated or substituted and will make recommendations on protocol as needed.

### Regulated Drug Screens

DOT regulations for drug testing require MRO review for **all** drug screens.

Many state and state law programs also require MRO review for compliance and assistance regarding workers compensation & unemployment claims.



# MRO REVIEW

## PROCESS & SCENARIOS

The MRO will attempt to contact the donor multiple times over the course of days. A common process would be 1 attempt per day for 3 days, leaving voicemails each time no contact was made. Some MROs also utilize SMS communication.



### MRO Scenario Example:

A donor was diagnosed with ADHD and takes Adderall as prescribed by their physician. They test positive for amphetamines in their pre-employment drug test, and the result is sent to the MRO. The MRO will contact the donor, verify the prescription, and if validated, their result would be finalized as a Negative by the MRO. Details of the medication are not shared with the employer.

### Overturning Results

Let's say the MRO was unable to make contact with the donor above. In this scenario, they would finalize and release the result as a positive for amphetamines, noting their inability to contact. The result is typically released as "Positive – No Contact" or something similar. Should the donor contact the MRO after finalization and provide valid prescription information, the result would be overturned to a Negative. Conversely, should the donor make contact and provide unverifiable prescription information or none at all, the "Positive – No Contact" would be updated to Positive.

# MRO REVIEW

## A NOTE ON THC

Since THC is still federally illegal, a positive THC result cannot be overturned by the MRO. Donors may believe that their Medical Marijuana Card or state legality will cover them, however, this is not the case. A positive result will always be positive, and it's left up to the employer to determine how to handle the positive result.

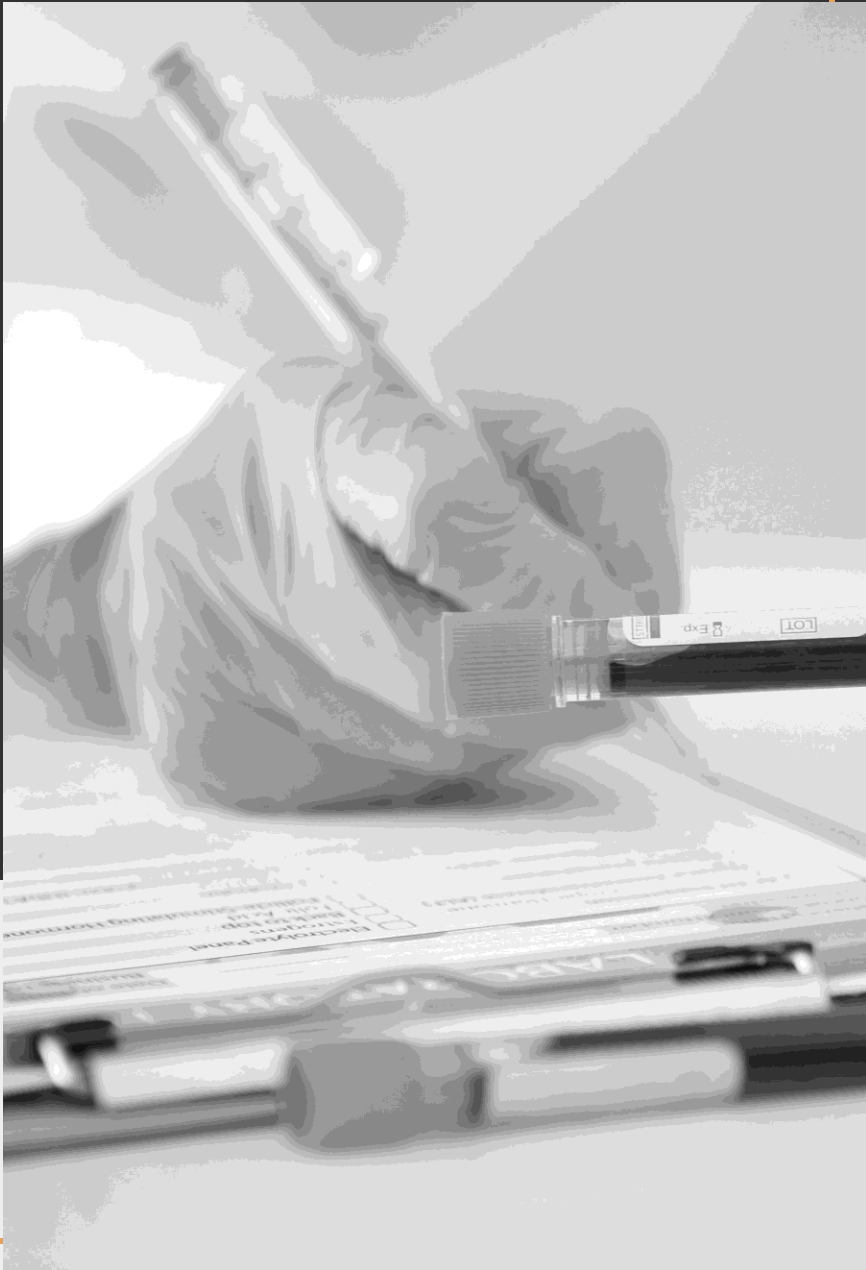


## Potential False Positives

**Poppy Seeds** naturally contain morphine and codeine and can potentially make a donor test positive for opioids. However, this is highly dependent on the donor's weight vs the amount of poppy seeds consumed, as well as the opioid cutoff level for the drug panel. In one study, an individual weighing 130 pounds tested positive for opioids after eating only two poppy seed bread rolls.

**Vick's Nasal Spray** and other nasal decongestants contain two isomers that may lead to a false positive for methamphetamines.

**CBD Oil** is allowed to contain up to 5% THC in some states, and can then lead to a positive THC result. While this is technically a true positive, it is an important note for donors to be wary of if consuming CBD oils.



# DRUG SCREEN

# RESULTS

# DRUG SCREEN RESULTS

Excluding standard Negative & Positive, these are other results you may find on the final report.

## Dilute Specimens

The urine specimen had a greater concentration of water than that of a normal urine specimen. Dilute results will still be reported in tandem with a negative or positive.

Recalling the 3 components of Specimen Validity Testing (SVT), the level of creatinine is what determines a dilute specimen. Dilute specimens are defined by creatinine levels less than 20 mg/dL.

## Negative-Dilute

A specimen that resulted as both negative and dilute. Many employers will require a retest but should ultimately consult their compliance team if they are unsure of how to handle this result.

## Positive-Dilute

Despite being diluted, the specimen had a high enough concentration of a drug to test positive. These results are typically treated as normal positives.



# DRUG SCREEN RESULTS

Excluding standard Negative & Positive, these are other results you may find on the final report.

## Invalid

A specimen that contains an unidentified adulterant or an interfering substance, has abnormal physical characteristics, or has an endogenous substance at an abnormal concentration that prevents the laboratory from completing or obtaining a valid drug test result.

## Adulterated

A specimen that was found to be deliberately tampered with.

## Substituted

A specimen with creatinine and specific gravity values that are so diminished that it is not consistent with normal human urine.



# DRUG SCREEN RESULTS

Excluding standard Negative & Positive, these are other results you may find on the final report.



## Cancelled / Fatal Flaw

A Fatal Flaw result typically indicates that an error occurred in the collection process of a specimen, and the test was cancelled as a result. Employers will need to determine what their next steps are, but in most cases, the donor would need to retest.

Scenarios considered as fatal flaws:

- The Chain of Custody form (CCF/COC) did not accompany the specimen to the lab or vice versa.
- The collector did not complete their name and/or signature of the CCF.
- Two separate collections are performed using only one CCF.
- The specimen ID number listed on the specimen bottle does not match the specimen ID number on the CCF.
- The seal on the specimen bottle is broken or appears to have been tampered with.
- Insufficient amount of sample in the bottle upon lab arrival (could indicate leakage during transit).

# DRUG SCREEN RESULTS

Excluding standard Negative & Positive, these are other results you may find on the final report.



## Refusal to Test

Once the donor receives the collection cup, they must move forward and comply with the testing requirements. If the donor interferes with the process or leaves without providing a specimen, it is considered a **Refusal to Test**. The reason for refusal will be noted on the Chain of Custody by the collector.

Shy Bladder is a common reason for refusal to test. If the donor is unable to provide a sufficient amount of urine for a drug test, the collector will initiate the shy bladder process where the donor will be provided 40 ounces of water over a 3-hour period. If the donor is unable to provide a specimen within the 3-hour period, it will be considered a Refusal to Test.

A common scenario could be a donor on a time crunch that experiences a shy bladder at the time of collection. They were not anticipating this and aren't able to stay long enough to produce a specimen. While "refusal" has a negative tone, the reasoning can often be innocent. However, it is important for clients and donors to understand the expectations prior to their clinic visit.



# HAVE ADDITIONAL QUESTIONS? CONNECT WITH OUR TEAM

[SALES@SHIELDSCREENING.COM](mailto:SALES@SHIELDSCREENING.COM)

