Urine Adulteration Strip

Urine adulteration test strips are for In Vitro use only. It is fast one-step test for the determination of diluted or adulterated urine specimens. It is an important pre-screening test for any drug-testing program. No equipment is required for its use. Only fresh and uncentrifuged urine samples without preservatives are to be used.

Adulterant Interpretation

Urine adulteration refers to the situation where urine donors add extraneous substances into the urine specimens with the hope that these substances will alter the drugs of abuse test results rendering a positive reading into a negative one. So it is important to insure the intergrity of sample. Simple dilution of urine is probably the most common form of urine adulteration. Tests for adulterants, specific gravity and creatinine can aid in the detection of common methods for defeating urine drug tests including dilution, or adulteration of the sample with bleach, vinegar, sodium bicarbonate, soft drinks or hydrogen peroxide. Since tests for adulterants, specific gravity and creatinine detect many of these common adulterants, some drug users are utilizing commercially available adulterants, including nitrite, glutaraldehyde, bleach, pyridiniurn chlorochromate and other oxidizing agents.

Test Principle

In general, all six tests are based on the chemical reactions of the indicator reagents on the pads with components in the urine sample effecting color changes. Results are obtained by comparing the color on each of the test pads with the corresponding pad on the color chart.

pH: Tests for the presence of acidic and alkaline adulterants. This test is based on a double indicator principle that gives distinguishable colors over wide pH range. Normal urine pH ranges from 4.0 to 8.5. Values below pH4.0 or above 9.0 are indicative of adulteration. The colors range from red or orange (low pH) to green and blue (high pH).

Specific Gravity: Testing for sample dilution. Normal levels for specific gravity will range from 1.003-1.030. Specific gravity levels of less than 1.003 or higher than 1.030 are indication of adulteration. In the presence of an indicator, the colors range from dark blue or blue green in urine of low ionic concentration to green and yellow in urine of higher ionic concentration. Elevated levels of protein in urine may cause specific gravity values to be higher.

Oxidants: Testing for presence of oxidizing reagents. In this reaction, a color indicator reacts with oxidants such as bleach, hydrogen peroxide or pyridinium chlorochromate to form a blue or green color . The presence of high levels of antioxidants in the specimen, such as ascorbic acid, may result in false negative results for the oxidant pad. And the formation of blue pad color may also indicate the presence of other oxidative adulterants.

Creatinine: Testing for sample dilution. In this assay creatinine reacts with a creatinine indicator in an alkaline condition to form a purplish-brown color complex. The concentration of creatinine is directly proportional to the color intensity of the test pad.

Glutaraldehyde: Testing for the presence of exogeniuos aldehyde adulterated in the urine. In this assay the aldehyde group on the glutaraldehyde reacts with an indicator to produce a roseal color. Glutaraldehyde is not a normal component of urine. Hence , the detection of glutaraldehyde in the urine sample indicates the possibility of adulteration. However, in ketoacidosis,starvation or other metabolic abnormalities, ketone bodies may appear in the urine, interact with the glutaraldehyde pad and provide a false result.

Nitrite: Test for the presence of diazo-compound. This test is based on the reaction of aromatic amine to yield a diazonium salt which then couples with an indicator to form a color complex ranging from pink to dark red depending on the concentration of nitrite in the sample. Nitrite level above 50mg/dl is considered abnormal

ADULTERANT TESTS(SPECIMEN VALIDITY TEST) REAGENTS

Adulteration Pad	Reactive Indicator	Buffers and Non-reactive Ingredients
Oxidants (OXI)	0.30%	99.70%
Specific Gravity (SG)	0.21%	99.79%
pH	0.06%	99.94%
Nitrite（NIT）	0.06%	99.94%
Glutaraldehyde（GLUT）	0.02%	99.98%
Creatinine（CREA）	0.03%	99.97%

Specimen Collection and Preparation

SPECIMEN COLLECTION

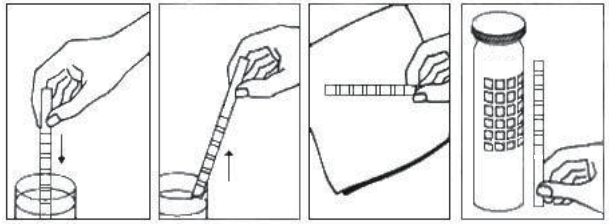
1. Collect urine in a clean glass or plastic container.
2. Test urine sample as soon as possible after collection.Refrigerate urine sample immediately if the sample cannot be tested within one hour. Bring refrigerated sample to room temperature and mix thoroughly before testing.
3. Do not centrifuge or add preservatives to the urine sample.
4. Handle the urine sample as if it is potentially infectious.
5. Aliquot a small portion of the urine sample into another container for testing in order to avoid contamination of the whole urine sample. Do not dip directly into the primary collection container.

Specimen Storage

Urine specimens may be stored at 2-8℃for up to 48hours prior to testing. For prolonged storage, specimen may be frozen and stored below -20℃.frozen specimens should be thawed and mixed well before testing.

PROCEDURE

1. Remove from the bottle only enough strips for immediate use and replace cap tightly.
2. Completely immerse reagent areas of the strip in fresh, well-mixed urine. Remove the strip immediately to avoid dissolving out the reagent areas.
3. While removing, touch the side of the strip against the rim of the urine container to remove excess urine. Blot the lengthwise edge of the strip on an absorbent paper towel to further remove excess urine and avoid running over (contamination from adjacent reagent pads.)
4. Compare each reagent area to its corresponding color blocks on the color chart and read at the times specified. Proper read time is critical for optimal results.
5. Obtain results by direct color chart comparison.



Note: All reagent areas may be read between 1 - 2 minutes for screening positive urine from negative urine. Changes in color after 2 minutes are of no diagnostic value.