

The Challenge of Dilute Specimens

Dilution is the process of reducing the concentration of drug or drug metabolites in the sample. This is accomplished by adding fluid to the sample or by drinking large amounts of fluid to dilute the specimen, called "internal dilution." If the amount of the natural substance creatinine in the urine is abnormally low, internal dilution may be the cause. Drug testing laboratories all routinely test samples to detect dilution.

Dilution should not be confused with adulteration, where chemical adulterants are directly added to a urine specimen. Many products intended for oral consumption and claiming to help "rid the body of toxins" are sold over the Internet. Although these "body cleansing" products may claim to "rid the body of toxins" (i.e. help beat the drug tests), they appear to be effective only because of the large amounts of water the user is instructed to consume along with the teas or powders. Consumption of excess fluids is the most effective way to dramatically increase urine production rates and produce dilute urine specimens.

A dilute specimen can be caused by 2 circumstances. The first is very rare, and would be caused by an individual diluting the urine with water, or other liquid, by actually pouring it into the specimen at the time of collection. The second method of obtaining a dilute specimen is by consuming too many liquids, especially liquids that contain diuretics, prior to collection (ie coffee, soda pop, medications, etc). This may be inadvertent or may be on purpose on the part of the donor. In order to obtain a specimen that is not dilute, have the individual void after waking in the morning and drink 2 8oz glasses of orange juice (no coffee, pop, etc).

NON-DOT TESTING

A dilute specimen, by definition, is a urine specimen that has a creatinine of less than 20 g/dl and a specific gravity of 1.003 or less. These 2 tests are routinely performed on every urine sample that is tested at the Lab. If the specimen meets the above 2 criteria, it is reported as a "Dilute specimen". When a urine specimen is "dilute", it is possible that drugs in their system may not be detected. We recommend that an employer have a section in their drug testing policy stating that another specimen be collected as soon as possible with minimum advance notice, this will help prevent false negative results. However, the employer may also elect to accept the negative results with the notation "dilute" from the lab. The company policy should be consistent in all cases. See sample language for company policy on dilute specimens at the end of this article. (Contact sales@drugtestingusa.com for additional assistance with drug testing policy development)

DOT TESTING

The DOT policy regarding negative-dilute specimens – With dilute specimens showing creatinine level of greater than 5mg/dl and less than 20 mg/dl, the employer may require the donor to submit to another specimen collection. The re-collection cannot be done under direct observation. If the employer adopts a policy of re-collection for negative-dilute results, all employees must be treated the same. However, the employer may elect to treat different types of tests differently (e.g. re-collect for pre-employment tests, but not for random tests). If the second test is also negative-dilute, the employer must accept that result and cannot continue re-collections. The second test is the test of record. An applicant/employee's refusal to submit to a re-collection for a negative-dilute result is a refusal to test under the DOT rule.

On May 28, 2003, the Department of Transportation (DOT) announced that it was immediately changing the definition of a "substituted" specimen in urine drug testing so that urine specimens with a creatinine level greater than 2mg/dL but less than 5 mg/dL will no longer be reported as "substituted." This change is important because a "substituted" test is considered a refusal to take a drug test, which is a violation of DOT rules equivalent to failing a drug test.

The reason for the change is that the DOT has learned of a small number of cases in which individuals appear to have had legitimate medical explanations for producing specimens with a

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creatinine level of less than or equal to 5 mg/dL. In addition, the DOT concluded that there is an increasing consensus among scientific and medical experts that the 5 mg/dL standard may not be appropriate.

Under the new rules, when the Medical Review Officer (MRO) gets a report from the laboratory that the creatinine level in a specimen is less than 2 mg/dL or the creatinine is "not detected," the MRO will report the specimen to the employer as "substituted."

Dilute specimens will not cause the employee to be regarded as violating the regulation. When the MRO gets a report from the laboratory that the creatinine level in a specimen is greater than or equal to 2 mg/dL but less than or equal to 5 mg/dL, the MRO will report the specimen to the employer as "dilute" and must, under the new rules, direct the employer to require the employee to undergo an immediate recollection under direct observation. The employer must then ensure that this recollection takes place. Remember that the dilute with creatinine level greater than 5mg/dl and less than 20 mg/dl can require a second collection but it cannot be directly observed unless another reason for the direct observation is present.

Sample Policy Language for Dealing with Dilutes:

For DOT Programs:

Follow the specific procedures outlined above. Each type test and donor, employee or applicant category will be treated the same under this policy.

For Non DOT Programs:

Option 1: If the urine specimen is determined to be negative and diluted (urine specimen with a creatinine level of less than 20 g/dl and a specific gravity of 1.003 or less) the donor will be required at the employer's request to refrain from drinking excessive amounts of fluids and provide with minimum possible advance notice specimen to be tested. The second test shall become the test of record.

Option 2: A negative dilute (urine specimen with a creatinine level of less than 20 g/dl and a specific gravity of 1.003 or less) result will be accepted for compliance with this policy. (*This would be the appropriate action if the company policy does not address dilute specimens.*)

