

Dilute Urine Collection for Drug Testing

The two measurements used by the Lab and/or Medical Review Officer (MRO) to determine urine dilution are **specific gravity (SG)** and **creatinine**. *Specific gravity* measures the density, or thickness, of urine. Normal SG for urine is 1.003 or greater. *Creatinine* is a protein found in all urine. As SG increases, so should the creatinine. A miss-match between creatinine concentration and SG is a flag for an invalid or substituted urine specimen.

MRO's use specific gravity to classify a urine specimen into one of three groups:

Group 1: Specific gravity greater than or equal to 1.003

This is normally concentrated urine.

Group 2: Specific gravity greater than or equal to 1.001, but less than 1.003

This is a dilute specimen. Results, however, are reliable enough to permit the MRO to rule on the test.

Group 3: Specific gravity less than 1.001

Extremely dilute. This may represent a substituted specimen.

Creatinine is used to help determine if a specimen is *substituted* (that is, something other than urine) or if it is *invalid*.

If a specimen is very dilute (group 3), and the creatinine concentration is too high, then the urine is *substituted*.

If a specimen is normal to slightly dilute (groups 1 or 2), and the creatinine concentration is too low, then the urine is *invalid*.

If a urine specimen is classified as either substituted or invalid, then the test is *cancelled* on the basis of *refusal to test*.

For Federal drug tests, an immediate, witnessed recollection is required.

For forensic (non-Federal) drug tests, employer policy dictates the appropriate action.