

NIST releases two new SRMs for monitoring human exposure to environmental toxins

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The National Institute of Standards and Technology (NIST), in collaboration with the Centers for Disease Control and Prevention (CDC), has developed two new Standard Reference Materials (SRMs) for measurements of human exposure to environmental toxins. Used as a sort of chemical ruler to check the accuracy of tests and analytic procedures, the new reference materials replace and improve older versions, adding measures for emerging environmental contaminants such as perchlorate, a chemical that the Environmental Protection Agency has targeted for regulation as a contaminant under the Safe Drinking Water Act.

The CDC will use the new SRMs—3668, "Mercury, [Perchlorate](#), and Iodide in Frozen Human Urine" and 2668, "Toxic Elements in Frozen Human Urine"—as quality controls for urine tests during their biennial National Health and Nutrition Examination Survey (see www.cdc.gov/nchs/nhanes.htm .)

Because sample collection is non-invasive and the test results reflect exposures as recent as two days, urine is preferred for clinical diagnostics and monitoring of toxic environmental chemicals. Once collected, samples are frozen while they await testing.

In order to generate comparable results among tests, best practices in clinical chemistry state that a reference material should closely mimic how a specimen would respond to these tests. The best way to achieve such close resemblance is to make the physical, chemical and biological

properties of the reference material as close as possible to the specimen. NIST researchers developed these new SRMs to replace the freeze-dried SRMs 2670a, 2671a and 2672a because when the frozen urine SRM is thawed it matches the properties of clinical urine specimens much more closely than reconstituted freeze-dried urine SRM.

In addition to NIST, the CDC, Mayo Clinic and the New York State Department of Health made certification measurements of the two SRMs to ensure their relevance for the intended applications. The development of SRMs 2668 and 3668 reflects NIST's commitment to continually improve chemical metrology to improve the health of the nation.

More information: For more on SRM 3668, see www-s.nist.gov/srmors/view_detail.cfm?srm=3668 . For more on SRM 2668, see www-s.nist.gov/srmors/view_detail.cfm?srm=2668

Provided by National Institute of Standards and Technology

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