



Designation: C 1379 – 9704

Standard Test Method for Analysis of Urine for Uranium-235 and Uranium-238 Isotopes by Inductively Coupled Plasma-Mass Spectrometry¹

This standard is issued under the fixed designation C 1379; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of the concentration of uranium-235 and uranium-238 in urine using Inductively Coupled Plasma-Mass Spectrometry. This test method can be used to support uranium facility bioassay programs.

1.2 This method detection limits for ²³⁵U and ²³⁸U are 6 ng/L. To meet the requirements of ANSI N13.30, the minimum detectable activity (MDA) of each radionuclide measured must be at least 0.1 pCi/L (0.0037 Bq/L). The MDA translates to 47 ng/L for ²³⁵U and 300 ng/L for ²³⁸U. Uranium-234 cannot be determined at the MDA with this test method because of its low mass concentration level equivalent to 0.1 pCi/L.

1.3 The digestion and anion separation of urine may not be necessary when uranium concentrations of more than 100 ng/L are present.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—**Warning:** The ICP-MS is a source of intense ultraviolet radiation from the radio frequency induced plasma. Protection from radio frequency radiation and UV radiation is provided by the instrument under normal operation.

¹ This test method is under the jurisdiction of ASTM Committee C-26 on Nuclear Fuel Cycle and is the direct responsibility of Subcommittee D26.05 on Methods of Test. Current edition approved December 10, 1997; Jan. 1, 2004. Published March 1998; February 2004. Originally approved in 1997. Last previous edition approved in 1997 as C1379-97.