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NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 11844-2015

Replacing GB/T 11844-1989; GB/T 13369-1992

Determination of fluorine and chlorine in uranium dioxide powder and pellets -- Pyrohydrolysis ion-selective electrode method

二氧化铀粉末和芯块中氟、氯的测定 高温水解-离子选择性电极法

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard replaces GB 11844-1989 "uranium dioxide powder and pellets - Determination of fluorine high temperature hydrolysis - ion selective electrode method" and GB/T 13369-1992 "uranium dioxide powder and pellets - Determination of chlorine in high temperature hydrolysis - ion selective electrode method" and GB 11844-1989 and GB/T 13369-1992, compared the main technical changes are as follows.

--- Modify the sample size and measurement range;

--- Modify the standard curve drawing content;

--- Modified high temperature hydrolysis process parameters;

--- Modify the GB 11844-1989 and GB/T 13369-1992 precision.

This standard uses redrafted Law Amendment uses ISO 22875:2008 "Nuclear testing uranium dioxide powder and sintered pellets of CFCs set".

This standard and ISO 22875:2008, compared with more adjustment in the structure, listed in Appendix A of this standard and ISO 22875:2008 the reg number control list.

This standard and ISO 22875:2008 technical differences exist compared to the terms of these differences has been involved through its outer margin bits Opposing vertical single line (-) were marked, Appendix B gives a list of corresponding technical differences and their causes.

This standard and ISO 22875:2008 compared also made the following editorial changes.

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--- Change in name;

--- Increase the informative Appendix C.

The standard proposed by China National Nuclear Corporation.

This standard by the National Standardization Technical Committee on Nuclear Energy (SAC/TC58) centralized.

This standard was drafted. China Jianzhong Nuclear Fuel Limited.

1 Scope

This standard specifies the determination of uranium dioxide powders and pellets by fluorine, chlorine feed method, reagents, instruments and equipment, sample analysis step junction If the calculation and precision of the method.

This standard applies dioxide powder and fluorine, chlorine measured uranium pellets that when a sample in the range of 0.5g ~ 5.0g, the measurement range of the fluorine 1μg/g ~ 400μg/g, chlorine measurement range 2μg/g ~ 200μg/g. The absorbing solution in the presence of impurity ions Al3 not more than 16μg, Ca2 no more than 10μg, Fe3 not more than 10μg, when Mg2 not more than 22μg, does not affect the determination of fluoride.

2 Method summary

Sample in a quartz reactor tube 900 °C ~ 1000 °C, the pass into the air stream containing water vapor at high temperature hydrolysis, fluorine, chlorine, fluorine, respectively Hydrogen, chloride forms evaporate and is absorbing buffer solution, ion selective electrode with fluoride, chloride ion selective electrode.

3 Reagents

Unless otherwise indicated, all using the national standard or professional standard, superior grade pure reagents, analysis of water should comply with the electrical conductivity (25 °C) is not greater than 0.10mS/m.

3.1 Buffer solution

Weigh 0.50g of potassium acetate (CH3COOK) (AR) in 100mL beaker, dissolved in water, glacial acetic acid was added 0.25mL (CH3COOH, the density of 1.05g/cm3), in its entirety was transferred to a 1L volumetric flask and dilute to the mark, shake, stored in polyethylene bottles Standby.

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3.2 Fluorine standard solutions, 1000μg/mL

Weigh 2.2101g by sodium fluoride (NaF) drying 2h under 105 °C ~ 110 °C, dissolved in a little water and transferred to a 1L volumetric flask Diluted with water to the mark, shake, stored in a polyethylene bottle aside. Or the use of certified reference materials.

3.3 Fluorine standard solutions, 50μg/mL

(3.2) standard solution was diluted with a fluorine.

3.4 Chlorine standard solution, 1000μg/mL

Weigh 1.6485g burning after 400 °C ~ 450 °C to constant weight of sodium chloride (NaCl), dissolved in a little water and transferred to a 1L volumetric flask Diluted with water to the mark, shake, stored in a polyethylene bottle aside. Or the use of certified reference materials.

3.5 Chlorine standard solution, 50μg/mL

(3.4) with diluted chlorine standard solution.

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