ICS 27.120.30
CCS F46

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 11847-2008

Replacing GB/T 11847-1989

Determination of specific surface area of uranium dioxide powder by BET capacity method

二氧化铀粉末比表面积测定 BET容量法

Issued on: June 19, 2008 **Implemented on: April 1, 2009**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China;
Standardization Administration of China

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Foreword

This standard replaces GB/T 11847-1989 "uranium dioxide powder by multipoint BET specific surface area of \u200b\u200blaw." This standard compared with GB/T 11847-1989, the main changes are as follows:

--- Increase in single-point BET method, including the principle of a single point BET method, test procedures, the results of calculation and precision of the method;

--- Equipment and materials added to the material, liquid oxygen to liquid nitrogen thermometer thermometer;

--- Take a sample and the amount of vacuum degassing range has been adjusted;

--- Instrument calibration constant as a normative Annex A;

--- Mercury vapor pressure and density table table as informative Appendix B;

--- Original instrument assembly Appendix A Technical Notes as instrument parameters. Appendix A of this standard is a normative appendix, Appendix B is an informative annex. The standard proposed by China National Nuclear Corporation. This standard by the National Standardization Technical Committee of nuclear energy. This standard was drafted. China Jianzhong Nuclear Fuel Limited. The main drafters. Zhang Xixiang, Qin Zhiping, You Yafei, Chen Lin. This standard replaces the standards previously issued as follows:

--- GB/T 11847-1989. Uranium dioxide powder specific surface area measuring BET volumetric method

1 Scope

GB/T 11847-2008 is the Chinese national standard on determination of specific surface area of uranium dioxide powder by bet capacity method, in the field of energy and heat transfer engineering. The /T suffix marks it as a recommended standard: it is not

compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 19 June 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 April 2009. Classification: ICS 27.120.30, CCS F46. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the BET volumetric method (single point, multipoint) uranium dioxide powder specific surface area measuring method. This standard applies to uranium dioxide powder specific surface area measurement, measuring range. (1 ~ 40) m2/g. Powders or other porous material Than the surface area can be measured with reference to use.

2 Principle of the method

2.1 Fundamentals Placed in the sample gas in the system, the external and internal surfaces of the through-hole material particles will physically adsorbed at low temperatures. Allow a known amount of Adsorbed gas into the sample chamber, the sample is adsorbed gas, and thus the limited volume constant pressure decreases until adsorption equilibrium is reached until. It is equal to the amount of gas adsorbed into the sample burette and the total amount of gases adsorbed equilibrated sample burette remaining gas bubbles and the amount of BET adsorption principle formula, see formula (1). M1 = 1C Vp + C-1 C Vp m1 (1) Where. C

--- adsorption heat-related constants; Vp m1

--- single molecular layer adsorption capacity, in milliliters (mL). It was measured to calculate the adsorption capacity of the sample monolayer according to formula (1), to calculate the surface area of \u200b\u200bthe sample. More than 2.2-point method

2.2.1 the total adsorption (Vp) is calculated. The total adsorption (Vp) See calculation formula (2). Vp = 273.2 1.0132 x 105 Vp 1 T1 - T2 - The T () Ju (2) Where. Vp 1

--- FIG. 1 A, B, 9, C to 0 between the volume in milliliters (mL of); Vp 2

--- FIG. 1 H, A, B, 9, C to 0 between the volume in milliliters (mL of); T2

--- Adsorption equilibrium temperature when the unit is open (K); alpha

--- nitrogen at liquid nitrogen temperature correction factor undesirable behavior; Vp 3

--- grinding mouth H vial volume except the following sample, in milliliters (mL); T Ju

--- liquid nitrogen temperature, the unit is open (K).