

ICS 27.120

CCS F48



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13368-2008

Replacing GB/T 13368-1992

**Specification for nuclear fuel rods of miniature neutron source
reactor**

微型中子源反应堆核燃料棒技术条件

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Foreword

This standard replaces GB/T 13368-1992 "miniature neutron source reactor fuel rods." This standard compared with GB/T 13368-1992 main changes are as follows:

- Increasing the X-ray detection technology requirements;
- Increasing the cladding tube dimensions and surface quality requirements;
- Added "girth weld and solder joint metallurgical examination" of the content;
- Added "oxide film thickness detection method";
- 6.1 adds destructive inspection requirements;
- 6.2 test items to add a "metallurgical test results";
- Delete "boiled leak" method. The standard proposed by China National Nuclear Corporation. This standard by the National Standardization Technical Committee of nuclear energy. This standard was drafted. China North Nuclear Fuel Limited. The main drafters of this standard. Wang Yuling, Weidong Bo, CHI new country. This standard replaces the previous standard release case. GB/T 13368-1992. Miniature neutron source reactor fuel rods

1 Scope

GB/T 13368-2008 is the Chinese national standard on specification for nuclear fuel rods of miniature neutron source reactor, 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, CCS F48. 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 miniature neutron source reactor fuel rods (referred to as "micro-reactor fuel rods") of technical requirements, materials, test methods, inspection Rules and packaging, storage, transportation and other requirements. This standard applies to micro-reactor fuel rod fabrication and inspection.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 3190 modification of the chemical composition of aluminum and aluminum alloy

GB/T 4437 aluminum and aluminum alloy extruded tube

GB 11806 Regulations for the Safe Transport of Radioactive Substances

GB/T 11809 PWR fuel rods weld metallographic examination

GB 15146.3 fissile materials outside reactor - Nuclear criticality safety for fissile materials storage requirements for nuclear criticality safety

GB 18871 ionizing radiation protection and safety of radiation sources basic standards

JB/T 4730 Pressure Equipment NDT

3 Technical requirements

3.1 micro-reactor fuel rods from the upper end plug, cladding tubes, the fuel core and the lower end plugs, as shown in Fig. Millimeters 1

--- filled aluminum wire; 2

--- upper end plug; 3

--- cladding tube; 5

--- fuel core; 6

--- lower end plug; 7

--- joints. 1 micro-reactor fuel rods

3.2 micro-reactor fuel rods and plugging holes girth weld joints, the surface should be smooth, effective girth weld penetration and clogging fused joints minimum thickness of not less To 0.30mm.

3.3 X-ray flaw detection, weld or solder shall not claim lack of fusion, incomplete

penetration, cracks, slag and other defects, but allows individual points San pores exist having a diameter of not more than 0.20mm.

3.4 micro reactor core and the fuel rod cladding tube machinery snugly.

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