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JJG

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

JJG 478-2016

Replacing JJG 478-1996

??, ?? Surface Contamination Monitors (English Translation)

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Introduction

alpha, beta surface contamination meter is a commonly used radiation protection equipment for open radioactive workplace radioactive surface Pollution monitoring, the measurement performance directly affect the monitoring results of accurate and reliable, related to radiation safety.

JJF1002-2010 "Rules for the preparation of national metrological verification procedures", JJF1001-2011 "General measurement terms and Definition ", JJF1059.1-2012" measurement uncertainty assessment and representation "together constitute the basis for the development of the rules Nature specification. The revision of this procedure is based on GB/T 8997-2008 "alpha, beta surface contamination measuring instrument and monitor Quasi ", GB/T 5202-2008" radiation protection equipment alpha, beta and alpha/beta (beta energy greater than 60keV) pollution measuring instrument and Monitor "as the main technical reference.

Compared with JJG 478-1996, in addition to editorial changes, the main technical changes are as follows.

- the name of the program changed to "alpha, beta surface pollution meter", canceled the "gamma surface pollution meter";
- Increased requirements for standard plane source value uncertainty;
- to relax the test conditions on the ambient temperature requirements;
- cancel the "beta energy response" test items;
- increase the "background count rate" test items;
- "surface emissivity response" instead of "surface activity response";
- "basic error" is replaced by "relative inherent error";

The method of calculating the surface activity response and the measurement method of the calibration factor in the appendix.

The previous versions of this order are released as follows.

- JJG 478-1996.

Verification procedure of alpha, beta surface contamination meter

1 Scope

This procedure applies to the first test of alpha, beta surface contamination meter, subsequent verification and inspection in use, including alpha surface Pollution measuring instrument and monitor, beta surface contamination measuring instrument and monitor, and alpha/beta surface contamination measuring instrument and monitor.

This procedure does not apply to fixed alpha, beta personal surface contamination measurement monitoring devices and the maximum energy less than 60keV of the beta particle measurement or monitoring instrument.

2 reference file

This procedure refers to the following documents.

Standard Terminology and Definitions for JJF1001-2011 Nuclear science and technology terminology - Part 1. Nuclear physics and nuclear chemistry GB/T 4960.1-2010 Nuclear science and technology terminology - Part 6. Nuclear instrumentation GB/T 4960.6-2008 GB/T 5202-2008 Radiation protection equipment alpha, beta and alpha/beta (beta energy greater than 60keV) Pollution measuring instrument and Monitor GB/T 8997-2008 Calibration of alpha, beta surface contamination measuring instrument and monitor for dated references, only the dated edition applies to this rule; references that are not dated , The latest version (including all modified units) applies to this procedure.

3 terms and units of measurement 3.1 terminology JJF1001-2011, GB/T 4960.1-2010, GB/T 4960.6-2008 Defined and the following terms and the definition applies to this procedure.

3.1.1 Surface emissivity response surfaceemissionrateresponse Under certain conditions, the response of the measuring instrument or device (system) to the stimulating effect is called a response the indication of the value and the amount of encouragement. When the magnitude of the radiation source is expressed as the surface emissivity, it is called the surface emissivity response.

3.1.2 Surface activity response alpha, beta surface contamination of the standard plane source of the value of the standard plane with the unit area of the activity of the quotient.

3.2 Units of measurement 3.2.1 [radioactive] activity. beige [lux]; symbol. Bq.

3.2.2 [source] Surface emissivity. 2pi particles per minute; Symbol. (min · 2pisr) -1.

4 Overview

alpha, beta surface contamination meter includes portable alpha, beta surface contamination measuring instrument and monitor, which has the alarm function.

By the detector, signal processing and display components, usually using scintillator detectors or gas detectors for the opening