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

GB/T 35734-2017

**Portable tube-excited X-ray fluorescence analysis equipment --
Classification, safety requirements and test
(English Translation)**

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Foreword

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

This standard uses the redrafted law to amend the use of IEC 62495.:2011 "nuclear instrumentation portable tube excitation X-ray fluorescence analyzer." this standard IEC 62495.:2011 technical differences and the reasons are as follows.

--- On normative references, this standard made a technical difference with the adjustment to adapt to China's technical conditions, adjust the situation Concentration reflected in the second chapter "Normative references", the specific adjustments are as follows.

- Replacing IEC 60982. 1989 with GB/T 11923 that does not equivalently adopt international standards;
- Replace IEC 60692.:1999 with GB/T 13980, which is not equivalent to international standards;
- Replacing IEC 61336.:1996 with GB/T 15636 that is not equivalent to international standards;
- IEC 61326 (all parts) replaced by GB/T 18268 (all parts) that is not equivalent to international standards;
- increase the reference GB 18871-2002;
- increase the reference GB/T 31364-2015.

--- Chapter 3, "Terms and definitions", according to the standard using the circumstances were cut and the order of adjustments; delete the "collimation device" "Probing Box" "Circuit measurement device" "Handheld device" "Measuring head" "under" normal conditions "portable device" "radiation generating device" "Department System Shield" "alarm device" "X-ray fluorescence measurement system" a total of 11 terms;

--- Added 5.5.2.3 "distance sensor", the two types of sensors described in 5.5.2.2.2 and 5.5.2.2.3 as "distance sensor";

--- 7.2 Added 7.2.1, 7.2.2, 7.2.3, 7.2.4, a clear electromagnetic compatibility test technical requirements and test methods.

This standard made the following editorial changes.

--- In line with the existing standard series, the standard name changed to "portable tube excitation X-ray fluorescence analyzer classification, safety Seeking its test";

--- Added "Introduction", IEC 62495.:2011 in Chapter 1 of the standard preparation purposes and the "portable tube excited X-ray fluorescence Optical analyzer" profile into the "Introduction";

--- Chapter 1 "Range" According to GB/T 1.1-2009 requirements, an increase of "This standard specifies the portable tube excitation X-ray fluorescence analysis Terms and definitions of instruments, classification, safety requirements and tests, and warning labels and instructions. ";

--- Chapter 6 "Warning signs and instructions" According to our standard habits, will be marked that a unified representation;

--- Added Table A.1, Appendix A of the ambient temperature and relative humidity and other parameters are placed in Table A.1;

--- Reference lists an increase of the reference to the relevant national standards and industry standards of our country.

This standard proposed by China National Nuclear Corporation.

This standard by the National Nuclear Instrument Standardization Technical Committee (SAC/TC30) centralized.

This standard was drafted. Institute of High Energy Physics, Chinese Academy of Sciences.

Introduction

This standard is intended for portable tube excitation X-ray fluorescence analyzer (hereinafter referred to as portable XRF analyzer) and radiological safety related Design and operation of, and experimentation with, performance specifications for common radiation, electrical, safety and environmental characteristics to minimize and avoid Health

risks during use. Portable XRF analyzer general performance and test methods see GB/T 31364-2015.

Portable fluorescence analyzers using low-power, small x-ray tubes as ionizing radiation sources represent a new type of industrial equipment. use Portable analyzers with small X-ray tubes to replace radioisotope sources (eg, ^{55}Fe , ^{57}Co , ^{109}Cd , ^{241}Am and ^{244}Cm) have been used such as the analysis of lead in paint, alloy identification, screening of soil containing harmful substances.

Portable tube excitation X-ray fluorescence analyzer Classification, safety requirements and tests

1 Scope

This standard specifies the terms and definitions portable pipe excitation X-ray fluorescence analyzer, classification, safety requirements and test and warning Marks and instructions.

This standard applies to the use of small X-ray tube as a commercial application of ionizing radiation source portable fluorescence analyzer.

This standard does not apply to the following X-ray fluorescence (XRF) analyzer.

- a) Portable XRF analyzers using radioactive sources;
- b) Large, fixed-mount XRF analyzers using X-ray tubes;
- c) Portable XRF analyzers for veterinary and medical applications.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 11923 ionizing radiation level gauge (GB/T 11923-2008, IEC 60982. 1989, NEQ)
 GB/T 13980 ionizing radiation densitometer (GB/T 13980-2008, IEC 60692.:1999, NEQ)
 GB/T 15636 ionizing radiation thickness gauge (GB/T 15636-2008, IEC 61336.:1996, NEQ)
 GB/T 18268 (all parts) Electromagnetic compatibility requirements for electrical equipment for measurement, control and laboratory use (GB/T 18268, IEC 61326, NEQ) Basic ionizing radiation protection and radiation source safety standards Energy dispersive X - ray fluorescence spectrometer the main performance test methods GB/T 31364-2015 IEC 61010-1.:2010 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1. General requirements
 (Safetyre-quirementsforelectricalequipmentformeasurement, control, andlaboratoryuse-Part 1. Generalre-quirements

3 Terms and definitions

The following terms and definitions apply to this document.

X-ray system X-raysystem A collection of components that produce and use x-rays, including x-ray generators and x-ray ancillary equipment.

X-ray generator X-ray generator X-ray systems include X-ray tubes and components that provide accelerated (high) voltage and current to the X-ray tube.

X-ray accessory X-ray accessoryapparatus any part of the x-ray device that is external to the x-ray generator and through which the x-ray beam passes and is being measured or otherwise used.