



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

GB/T 26642-2022

**Non-destructive testing - Industrial computed radiography with
storage phosphor imaging plates - General principles for
testing of metallic materials using X-rays and gamma rays**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document replaces GB/T 26642-2011 "Non-destructive testing of metal materials by computer radiography", and

Compared with GB/T 26642-2011, in addition to structural adjustment and editorial changes, the main technical changes are as follows.

- a) changed the scope (see Chapter 1, Chapter 1 of the.2011 edition);
- b) Changed and added some terms and definitions (see Chapter 3, Chapter 4 of the.2011 edition);
- c) Added symbols and abbreviations (see Chapter 4);
- d) Personnel qualifications have been changed (see Chapter 5, Chapter 4 of the.2011 edition);
- e) the principle of compensation for computed radiography has been added (see Chapter 6);
- f) Changed the requirements for the use of the image quality meter (see 7.6, 6.6 of the.2011 edition);
- g) Changed the requirements for transillumination (see 8.1, 7.1 of the.2011 edition);
- h) Changed the selection requirements of X-ray tube voltage and radiation source (see 8.2, 7.2 of the.2011 edition);
- i) Changed the requirements for CR system and metal screen (see 8.3, 7.3 of the.2011 edition);
- j) Changed the requirements for the selection of maximum unsharpness and basic spatial resolution of CR systems (see 8.4, 7.4 of the.2011 edition);

- k) Changed the requirements for ray source-workpiece distance (see 8.7, 7.7 of the.2011 edition);
- l) The requirement of minimum readout intensity for computed radiography has been deleted (see 7.9 of the.2011 edition);
- m) The requirements for observation conditions and displays are deleted (see 7.11 of the.2011 edition);
- n) Added requirements for data processing (see 8.10);
- o) Changed the requirements of the test report (see Chapter 9, Chapter 8 of the.2011 edition);
- p) Added normative Appendix A "Determination of Basic Spatial Resolution" (see Appendix A);
- q) Added Normative Appendix B "Determination of Normalized Signal-to-Noise Ratio" (see Appendix B);
- r) Added Normative Appendix C "Determination of Minimum Gray Value" (see Appendix C).

This document is identical to ISO 16371-2:2017 "Non-Destructive Testing Industrial Computed Radiographic Testing Based on Storage Phosphorescent Imaging Plates"

Part 2. General Rules for X-ray and Gamma-ray Inspection of Metallic Materials.

The following minimal editorial changes have been made to this document.

--- In order to harmonize with existing standards, the name of the standard was changed to "Non-destructive testing of industrial computerized radiography based on storage phosphorescent imaging plates."

General Rules for X-ray and Gamma-ray Inspection of Metallic Materials.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies the basic techniques of computed radiography with a view to obtaining satisfactory results economically and reproducibly. The technology to detect

It is based on the basic theory of measurement and experimental measurement. This document specifies the use of industrial computer X and gamma rays that store phosphorescent imaging plates (IPs).

General rules for detection. This document is based on the basic principles of film-based radiographic inspection of metallic materials as defined in ISO 5579.

Basic setup of radiation sources, detectors and their corresponding geometrical positions in accordance with ISO 5579 and related product standards, such as welding seam standard ISO 17636

And casting standard EN12681 requirements.

This document does not prescribe missing acceptance clauses. Computed radiography (CR) systems provide computer-only viewing and evaluation

Digital grayscale image. This document establishes recommended principles for the selection of detectors and radiographic testing. Computers, software, monitors, printers and observation conditions and other important elements are not the main content of this document.

This document specifies the minimum requirements for computed radiography and digital images to obtain film-based radiographs as determined in accordance with ISO 5579

Photographic detection is equally lacking in detection sensitivity. Some application standards, such as EN16407, provide inspections that may require different or less stringent requirements.

test conditions.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 21355-2022 Classification of non-destructive testing of industrial computerized radiography inspection systems based on storage phosphorescent imaging plates (ISO 16371-1.2011, IDT)

ISO 5579 Basic rules for non-destructive testing of metallic materials X and gamma radiographic testing (Non-destructive testing-

Note. GB/T 19943-2005 Basic Rules for Nondestructive Testing of Metallic Materials X and Gamma Radiography (ISO 5579.1998, IDT).

ISO 5580 Minimum requirements for non-destructive testing of industrial radiographic viewing lamps (Non-destructive testing-Industrialradio-

Note. GB/T 19802-2005 Minimum requirements for industrial radiographic viewing lamps for non-destructive testing (ISO 5580.1985, IDT).

tion of NDT personnel)

Note. GB/T 9445-2015 Non-destructive testing personnel qualification and certification (ISO 9712:2012, IDT).

ISO 16371-1 Non-destructive testing Industrial computed radiographic testing based on stored phosphorescent imaging plates Part 1. Classification of systems

ISO 19232-1 Non-destructive testing - Radiographic testing of image quality - Part 1. Determination of image quality values with filament IQI (Non-de-