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

GB/T 18876.2-2024

Replacing GB/T 18876.2-2006

**Standard practice for determining the metallographical constituent and inclusion content
of steels and other metals by automatic image analysis - Part 2: Determining the
inclusion ratings of steels by automatic image analysis and stereology**

应用自动图像分析测定钢和其他金属中金相组织、夹杂物含量和级别的标准试验
方法 第2部分：钢中夹杂物级别的图像分析与体视学测定

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Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Symbols	1
5 Test Method Overview	2
6 Device	2
7 Sampling	3
8 Sample preparation	3
9 Calibration	3
10 Step	3
11 Inclusion classification and grade calculation	4
12 Test Report	7
7 Appendix A (Informative) Typical Examples of Assessment Results	9

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 for standardization documents" Drafting. This document is a follow-up to GB/T 18876 "Determination of metallographic structure, inclusion content and grade in steel and other metals by automatic image analysis". Part 2 of "Quasi-Test Method". GB/T 18876 has published the following parts.

1. Image analysis and stereological determination of inclusion or second phase content in steel and other metals;

2. Image analysis and stereological determination of inclusion levels in steel;

3. Image analysis and stereological determination of carbide levels in steel. This document replaces GB/T 18876.2-2006 "Determination of metallographic structure and inclusion content in steel and other metals by automatic image analysis" Standard test methods for inclusion levels in steel - Part

2. Image analysis and stereological determination of inclusion levels in steel, GB/T 18876.2- Compared with.2006, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) The definitions of "aspect ratio", "discontinuous string (strip) inclusions" and "continuous string (strip) inclusions" were deleted, and GB/T 10561 was added. Defined terms (see Chapter 3, Chapter 3 of the.2006 edition);
- b) Added the assessment method for non-traditional inclusions (see 5.8);
- c) The evaluation method for precipitation phases such as titanium nitride, titanium carbonitride, boride, carbide, etc. has been changed (see 5.9, 5.9 of the.2006 edition);
- d) "Significance and Use" was deleted (see Chapter 6 of the.2006 edition);
- e) Added the requirements for high resolution and high storage capacity of image acquisition systems, and the requirement for software systems to have self-designed interfaces. See (see Chapter 6, Chapter 7 of the.2006 edition);
- f) Added the requirements for inclusion sampling (see Chapter 7, Chapter 8 of the.2006 edition);
- g) "Sample Preparation" has been deleted (see Chapter 9 of the.2006 edition);

1 Scope

GB/T 18876.2-2024 is the Chinese national standard on standard practice for determining the metallographical constituent and inclusion content of steels and other metals by automatic image analysis - part 2: determining the inclusion ratings of steels by automatic image analysis and stereology, in the field of metallurgy. 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 23 August 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2025. Classification: ICS 77.040.01, CCS H24. 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 document specifies the test method for quantitative determination of the grade of non-metallic inclusions using automatic image analysis in accordance with GB/T 10561. Method overview, apparatus, sampling, specimen preparation, calibration, procedures, inclusion classification and grade calculation, specimen reporting, precision and bias. This document applies to the assessment of inclusion levels in steel. This document classifies inclusions based on light reflectivity, geometry, width, length, number and diameter. Material ingredients.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 10561 Determination of non-metallic inclusions in steel - Rating chart microscopic examination method

GB/T 13298 Metal microstructure inspection methods

GB/T 18876.1 Standard test for determination of metallographic structure, inclusion content and grade in steel and other metals using automated image analysis Methods - Part

1. Image analysis and stereological determination of inclusion or second phase content in steel and other metals

GB/T 30834 Evaluation and statistics of non-metallic inclusions in steel - Scanning electron microscopy method

3 Terms and definitions

The terms and definitions defined in GB/T 18876.1 and GB/T 10561 apply to this document.

4 Symbols

The following symbols apply to this document. iA

---Class A inclusion level in a field of view; iB

---Class B inclusion level in a field of view; iC

---C-level of inclusions in a field of view; iD

---D inclusion level in a field of view; iDS

---DS inclusion level in a field of view; L

--- the total length of a certain type of inclusion in a field of view; n

--- the number of Class D inclusions in a field of view; d

--- Maximum diameter of DS inclusions;