

ICS 71.040.99

CCS N 53



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

GB/T 17365-2025

Replacing GB/T 17365-1998

**Microbeam analysis - Method of preparation for specimens of
metal and alloy in electron probe microanalysis**

微束分析 金属与合金电子探针定量分析试样的制备方法

Issued on: March 28, 2025

Implemented on: October 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

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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 for standardization documents" Drafting. This document replaces GB/T 17365-1998 "Preparation of samples for quantitative analysis of metals and alloys by electron probe microbeam analysis" and Compared with GB/T 17365-1998, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) The requirements for the sample analysis area have been changed (see Chapter 5, Chapter 4 of the.1998 edition);
- b) The number of cleaning tools has been changed from one to seven (see 4.2.1,.1998 edition). Chapter 3);
- c) Added matters needing attention in specimen cutting (see
- d) Added methods to avoid rounding of the edges of mounted specimens and methods to be used when analyzing the surface composition of mounted specimens. Conductive measures; added "avoid using coating layers containing the elements of the sample to be tested during evaporation" (see 6.1.2);
- e) Added "During quantitative analysis, corrosion of the test surface of the sample should be avoided as much as possible" (see 6.1.3);
- f) Added a new clause. "Particle specimens can be mounted, ground and polished, and tested after coating" (see 6.1.7);
- g) Added a new clause "Mechanical hot mounting content" (see 6.3.2.3);
- h) Added "vacuum mounting content" (see 6.3.3);

i) Added instructions for mechanical polishing (see 6.4). Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed and coordinated by the National Microbeam Analysis Standardization Technical Committee (SAC/TC38). This document was drafted by: China Iron and Steel Research Institute Co., Ltd., China Iron and Steel Research Institute NAK Testing Technology Co., Ltd., and China Metal Research Institute of the Chinese Academy of Sciences. Institute, Shandong Provincial Analysis and Testing Center, Guangdong Academy of Sciences Industrial Analysis and Testing Center, Shougang Group Co., Ltd., National Standard (Beijing) Inspection and Certification Co., Ltd. Limited company. The main drafters of this document are. Zhong Zhenqian, Lan Jianglin, He Lianlong, Ding Ning, Wu Chaoqun, Ju Xinhua and Ma Tongda. This document was first published in 1998 and this is the first revision. Microbeam analysis of metals and alloys Electron probe quantitative analysis Sample preparation method

1 Scope

GB/T 17365-2025 is the Chinese national standard on microbeam analysis - method of preparation for specimens of metal and alloy in electron probe microanalysis, in the field of chemical technology. 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 28 March 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 October 2025. Classification: ICS 71.040.99, CCS N 53. 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 describes the preparation of bulk specimens of metals and alloys for electron microprobe analysis. This document applies to standard samples and specimens for quantitative analysis using an electron probe or scanning electron microscope equipped with an energy dispersive spectrometer or a spectrometer. This document is not applicable to the preparation of samples with a particle size less than 5 µm or a thickness less than 4 µm.

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 4296 Microstructure test method for wrought magnesium alloys

GB/T 4930 General technical specifications for standard samples for electron probe analysis

GB/T 13298 Metal microstructure inspection methods

GB/T 15074 General rules for quantitative analysis by electron probe

3 Terms and definitions

There are no terms or definitions that require definition in this document.

4.1 Sample preparation and observation equipment

4.1.1 Specimen cutting equipment.

4.1.2 Mounting machine.

4.1.3 Metallographic specimen polishing machine.

4.1.4 Metallographic microscope.

4.2 Auxiliary equipment

4.2.1 Equipment for cleaning samples. one or a combination of the following tools can be used as needed. ultrasonic cleaner, nitrogen purge gun, air Compressors, static eliminators, vacuum cleaners, plasma cleaners, etc.

4.2.3 Alcohol lamp and crucible.

4.2.5 Vacuum coating machine.