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

GB/T 19267.13-2025

**Forensic sciences - Physical and chemical examination of trace
evidence - Part 13: Wavelength dispersive X-ray fluorescence
spectrometry**

法庭科学 微量物证的理化检验 第13部分：波长色散X射线荧光光谱法

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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 is part 13 of GB/T 19267 "Physical and Chemical Examination of Trace Evidence in Forensic Science". GB/T 19267 has been published. The following parts.

- 1. Infrared absorption spectroscopy;
- Part 2: UV-Vis absorption spectroscopy;
- 3. Molecular fluorescence spectroscopy;
- 4. Atomic emission spectrometry;
- 5. Atomic absorption spectrometry;
- 6. Scanning electron microscopy/X-ray spectroscopy;
- 7. Gas chromatography-mass spectrometry;
- 8. Microspectrophotometry;
- 9. Thin layer chromatography;
- 10. Gas chromatography;
- 11. High performance liquid chromatography;
- 12. Thermal analysis;

1 Scope

GB/T 19267.13-2025 is the Chinese national standard on forensic sciences - physical and chemical examination of trace evidence - part 13: wavelength dispersive x-ray fluorescence spectrometry, in the field of natural and applied sciences. 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 February 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 June 2025. Classification: ICS 07.140, CCS A 92. 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 wavelength dispersive X-ray fluorescence spectroscopy method for forensic trace evidence testing, including principles, instrumentation, sample preparation, and Product preparation, sample inspection and analysis, inspection result analysis, result expression and precautions. This document applies to the physical and chemical examination of trace evidence in the field of forensic science.

2 Normative references

The contents of the following documents constitute 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 13966 Terminology of analytical instruments

GB/T 14666 Terminology of Analytical Chemistry
GA/T 242 Terminology for physical and chemical examination of trace evidence in forensic science

3 Terms and definitions

The terms and definitions defined in GB/T 13966, GB/T 14666, GA/T 242 and the following apply to this document.

3.1 wavelength dispersive X-ray fluorescence spectroscopy The wavelength dispersive X-ray fluorescence spectrometer is used to measure the characteristic X-ray wavelength and intensity of the elements for qualitative and quantitative analysis of the elements.
method.

3.2 particle size effect The phenomenon that the intensity of fluorescent X-rays of the measured elements in the sample is affected by the particle size of the sample.

3.3 Segregation Differences in the distribution of elements in a sample.

3.4 Matrix effect The phenomenon that components other than the analyzed element in the sample affect the determination of the analyzed element.

3.5 Film Simple thin specimens and thin layers of material on some substrate.

3.6 Film analysis Measurement of film thickness and determination of film composition.

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