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

GB/T 19267.1-2023

Replacing GB/T 19267.1-2008

**Forensic sciences - Physical and chemical examination of trace
evidence - Part 1: Infrared absorption spectrometry**

法庭科学 微量物证的理化检验 第1部分：红外吸收光谱法

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Foreword

This document complies with the provisions of GB/T 1:1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting: This document is Part 1 of GB/T 19267: GB/T 19267 has released the following parts:

- Part 1: Infrared absorption spectrometry;
- Part 2: UV-visible absorption spectrometry;
- Part 3: Molecular fluorescence spectrometry;
- Part 4: Atomic emission spectrometry;
- Part 5: Atomic absorption spectrometry;
- Part 6: Scanning electron microscopy/X-ray spectroscopy;
- Part 7: Gas Chromatography-Mass Spectrometry;
- Part 8: Microspectrophotometry;
- Part 9: Thin layer chromatography;
- Part 10: Gas Chromatography;
- Part 11: High performance liquid chromatography;
- Part 12: Thermal analysis method: This document replaces GB/T 19267:1-2008 "Physical and chemical examination of criminal technical trace evidence - Part 1: Infrared absorption spectroscopy" "Law", compared with GB/T 19267:1-2008, in addition to structural adjustments and editorial changes, the main technical changes are as follows:
 - Changed the standard name (see cover, cover of:2008 edition);

1 Scope

GB/T 19267.1-2023 is the Chinese national standard on forensic sciences - physical and chemical examination of trace evidence - part 1: infrared absorption 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 27 November 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 June 2024. Classification: ICS 07.140, CCS A92. 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 infrared absorption spectroscopic examination methods in forensic science examination of trace evidence: This document is applicable to the physical and chemical examination of trace evidence in the field of forensic science:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

GB/T 8322 Molecular absorption spectrometry terminology

GB/T 14666 Analytical Chemistry Terminology 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 8322, GB/T 14666, GA/T 242 and the following apply to this document: 3:1 baseline In the absorption spectrum, it is used to represent the background absorption curve when the absorption band does not exist: 3:2 beamsplitter A semi-reflective device that can transmit 50% of incident light and reflect 50%: 3:3 A sample cell made of diamond used to prepare samples under high pressure to measure infrared spectra: 3:

4 An infrared spectroscopy method established based on the total reflection phenomenon of light and used to measure highly absorbing samples or sample surfaces:

Note: When infrared light is incident on a high refractive index crystal close to the surface of the sample at an angle greater than the critical angle, total reflection occurs because the refractive index of the sample is lower than that of the crystal: The infrared light only enters the very shallow surface layer: Only the incident light of certain frequencies is absorbed by the sample, and the rest is reflected: By measuring this attenuated radiation, we get Attenuated total reflection infrared spectrum to the sample: 3:

5 An infrared spectroscopy method for measuring powdered samples established based on the phenomenon of diffuse reflection of light:

Note: When infrared light irradiates the surface of the powdered sample, part of the light will produce specular reflection outside the surface sample particles, because the specular reflection beam does not enter: The interior of the sample particles does not interact with the sample, so this part of the specular reflected light does not carry any information about the sample: Another part of the light will be incident on the sample particles