

ICS 13.220.20

CCS C80/89



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

GB/T 16840.3-2021

Replacing GB/T 16840.3-1997

**Technical determination methods for electrical fire evidence -
Part 3: Auger electron spectroscopy component analytic
method**

电气火灾痕迹物证技术鉴定方法 第3部分：俄歇分析法

Issued on: August 20, 2021

Implemented on: August 20, 2021

**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 of Standardization Documents" Drafting. This document is the third part of GB/T 16840 "Technical Appraisal Method for Electrical Fire Trace Material Evidence". GB/T 16840 has been released The following parts.

2.Remanence detection method;

3.Auger analysis method;

4.Metallographic Analysis;

5.Identification and extraction methods of electrical fire material evidence;

---Part 6: SEM microscopic morphology analysis method;

---Part 7: EDS component analysis method;

8.Thermal analysis method. This document replaces GB/T 16840.3-1997 "Technical Appraisal Method for the Cause of Electrical Fire Part

3.Component Analysis Method", and Compared with GB/T 16840.3-1997, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- Changed the scope of application (see Chapter 1, Chapter 1 of the.1997 edition);
- Added a chapter "Normative Reference Documents" (see Chapter 2);
- Deleted all the terms and definitions of the.1997 edition, and added the terms and definitions of "holes" (see Chapter 3, Chapter 2 of the.1997 edition) chapter);
- Added the equipment, reagents, and parameters required in the analysis process (see Chapter 5, Chapter 4 of the.1997 edition);

1 Scope

GB/T 16840.3-2021 is the Chinese national standard on technical determination methods for electrical fire evidence - part 3: auger electron spectroscopy component analytic method, in the field of environment and health protection, safety. 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 20 August 2021 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 20 August 2021. Classification: ICS 13.220.20, CCS C80/89. 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 principles, equipment, equipment and reagents, inspection materials and methods of the Auger analysis method among the technical identification methods for electrical fire traces. Method steps and composition characteristics. This document is applicable to the use of Auger electricity on the inner surface of the hole on the cross section of the copper wire short-circuit melting mark extracted from the fire site during the fire investigation. The sub-energy spectrometer performs component analysis to identify whether the copper wire short-circuit melt mark is a primary short-circuit melt mark or a secondary short-circuit melt mark.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to This document.

GB/T 16840.1 Technical Appraisal Method of Electrical Fire Trace Material Evidence Part

3 Terms and definitions

The following terms and definitions defined in GB/T 16840.1 apply to this document.

3.1 Cavity Different sizes and shapes of pores, shrinkage holes, porosity, etc. produced in the cross section and inside of the melt mark.

4 Principle

The formation mechanism of the internal holes of the short-circuit melt mark is more complicated, mainly because the gas adsorbed by the surrounding environment during the solidification of the metal is trapped. Formed in the internal organization. Due to the difference in the ambient atmosphere formed by the primary short-circuit melt mark and the secondary short-circuit melt mark, when the wire is short-circuited and melted. When it melts and solidifies instantly, different ambient gas components must be melted into the metal, leaving different short circuits on the inner surface of the short-circuit melting hole. Certain characteristics of environmental conditions.

5 Equipment, equipment and reagents

5.1 Equipment The following main instruments and equipment should be provided.

---Scanning electron microscope and its auxiliary equipment;

---Auger electron spectrometer and its auxiliary equipment.

5.2 Equipment Tweezers, pliers, conductive glue.