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

GB/T 44819-2024

**Method for determining the spontaneous combustion indicator
gas and critical value in coal seams**

煤层自然发火标志气体及临界值确定方法

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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. 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 is proposed and coordinated by the China Coal Industry Association. This document was drafted by: China University of Mining and Technology (Beijing), China Coal Technology and Engineering Group Shenyang Research Institute Co., Ltd., China Coal Research Institute Co., Ltd., State Energy Group Wuhai Energy Co., Ltd., Kailuan (Group) Co., Ltd., China Academy of Safety Science and Technology, University of Science and Technology Beijing, Huaneng Coal Technology Research Co., Ltd., and Shanxi Lu'an Chemical Group Yuwu Coal Industry Co., Ltd. The main drafters of this document are: Zhu Hongqing, Liang Yuntao, Tan Bo, Tian Fuchao, Zhou Yong, Lu Xinxiao, Wu Jianguo, Zhou Fubao, Wang Haiyan, Song Shuanglin, Sun Yong, Wang Wei, Li Feng, Long Zeng, Quan Hongxing, Hu Bing, He Mingxin, Ai Xing, Su Weiwei, Wang Haiyan (female), Lei Baiwei, Niu Huiyong, Wu

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my country has abundant coal resources, with many coal-forming periods and diverse geological characteristics of the coal seams. The distribution of mining areas for coal seams prone to spontaneous combustion and self-ignition is The spontaneous combustion accidents in coal mines in recent years, as well as spontaneous combustion accidents in goaf and tunnel high-risk areas, have shown that due to the failure to Failure to take timely countermeasures due to early warning of coal spontaneous combustion is one of the main causes of spontaneous combustion accidents. Article 261, Article 7 and Article 52 of the Regulations on Fire Prevention and Extinguishing in Coal Mines stipulate that when mining coal seams prone to spontaneous combustion or spontaneous combustion, it is necessary to determine Coal seam spontaneous combustion indicator gas and critical value, comprehensive analysis of the spontaneous combustion monitoring system, safety monitoring system and manual inspection results, select and confirm Determine the natural combustion indicator gas and critical value, improve the natural combustion prediction and management system, and realize the early detection and early treatment of underground fire. The relevant norms and method documents are missing. Therefore, this document optimizes the selection method of coal seam spontaneous combustion indicator gas and establishes a coal seam spontaneous combustion indicator gas selection method. The ignition composite index gas judgment method is given, and the method for determining the critical value of coal seam spontaneous combustion indicator gas is given, which can be used as an early warning for coal spontaneous combustion fire accidents. The technical basis for early warning and timely response measures. Coal seam spontaneous combustion indicator gas and critical value determination method

1 Scope

GB/T 44819-2024 gives the method for choosing the indicator gas for spontaneous combustion in a coal seam and for determining its critical value. Spontaneous heating in a goaf is one of the persistent killers in Chinese coal mining, and it is detected long before there is any fire by the gases the oxidising coal gives off - carbon monoxide first, then ethylene and acetylene as the temperature climbs - but which gas indicates what temperature depends on the particular coal, so a value taken from another mine is worse than useless. The standard sets the method for selecting the indicator gases, including the gas chromatographic analysis of the coal's oxidation products, and then the determination of the critical value: what has to be determined, the choice of the underground observation site, the field observation methods, the determination of the critical temperature, the calculation of the critical value and the overall procedure, with a worked example in an annex. It takes effect on 1 May 2025.

This document provides a method for optimizing the gas indicators that indicate spontaneous combustion in coal seams in mines and a method for determining critical

values. This document is applicable to the monitoring, alarm, early warning and prevention of spontaneous combustion of coal seams in various types of mines, and is also applicable to spontaneous combustion of coal seams in other locations. Prevention and treatment.

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. AQ/T 1019 Gas Chromatographic Analysis of Spontaneous Combustion Indicators in Coal Seams and Optimization of Indicators AQ1029 Coal Mine Safety Monitoring System and Testing Instrument Use Management Specification AQ1044 Technical Specification for Fire Prevention and Extinguishing in Closed Mine KA/T 757 General technical requirements for spontaneous combustion bundle pipe monitoring systems in coal mines

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Fire caused by the oxidation and heat storage of coal or other flammable materials.

[Source: AQ/T 1019-2006, 3.1]

3.2 The intrinsic property of coal's oxidizability at room temperature. [Source: AQ/T 1068-2008, 3.1]

3.3 Fire gas firegas A general term for the mixture of gases produced during the spontaneous combustion of coal. [Source: AQ/T 1019-2006, 3.3]

3.4 Produced or changed due to spontaneous combustion, which can characterize the state and development trend of spontaneous combustion to a certain extent Fire gas, hereinafter referred to as marker gas. [Source: AQ/T 1019-2006, 3.4]