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

GB/T 10593.5-2025

**Method of the measuring environmental parameters for
electric and electronic products - Part 5: Corrosive gas**

电工电子产品环境参数测量方法 第5部分：腐蚀性气体

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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 5 of GB/T 10593 "Methods of measurement of environmental parameters of electric and electronic products". GB/T 10593 has been published. The following parts.

3.Vibration data processing and summarization;

5.Corrosive gases. 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 National Technical Committee for Standardization of Environmental Conditions and Environmental Testing for Electrical and Electronic Products (SAC/TC8). This document was drafted by: China Electric Power Research Institute Co., Ltd., Weikai Testing Technology Co., Ltd., Tianjin Aerospace Ruilai Technology Co., Ltd., Zhejiang Academy of Quality Science, Goldwind Science & Technology Co., Ltd., China Southern Power Grid Integrated Energy Co., Ltd., Tsinghua University Shenzhen International Graduate School, Kingfa Science & Technology Co., Ltd., China Yangtze Power Co., Ltd., AVIC Great Wall Measurement & Testing (Tianjin) Co., Ltd. Co., Ltd., Chongqing Artec Technology Co., Ltd., Tianhang Changying (Jiangsu) Technology Co., Ltd., Beijing University of Aeronautics and Astronautics, Beijing University of Science and Technology and Electric Power Research Institute of State Grid Fujian Electric Power Co., Ltd. The main drafters of this document are. Chen Chuan, Xiang Li, Gu Zebo, He Yixian, Liu Xin, Zhang Jingyi, Gao Yu, Xu Xuedong, Zhu Chen, Tai Bin, Wang Shouhe, Wang Xilin, Zhao Wei, Yi Yawen, Lü Guoyi, Xu Bin, Wang Jiayue, Li Xiaogang, Cheng Xuequn, Xia Xiaojian, Li Xin, Jia Zhidong, Qin Jiaxiang, Li Jinsheng, Yang Jun, Hu Weiwei.

GB/T 10593 "Measurement Methods of Environmental Parameters of Electrical and Electronic Products" series of standards mainly focus on the environmental parameters that affect the performance of electrical and electronic products. The measurement of numbers is planned to consist of six parts.

1.Vibration. This part mainly focuses on the measurement of vibration parameters of electrical and electronic products to guide the impact of these environmental parameters on electrical and electronic products. Impact analysis of sub-product performance.

2.Salt spray. This part is mainly aimed at the measurement of salt spray parameters in the environment of electrical and electronic products to guide the measurement of salt spray environment. Corrosion protection of electrical and electronic products, environmental optimization control, etc.

3.Vibration data processing and summarization. This part mainly analyzes the environmental vibration parameter data processing in detail so as to Analyze vibration parameters and guide the control of vibration conditions in the safe service environment of electrical and electronic products.

4.Condensation. This part mainly focuses on the measurement of condensation parameters of electrical and electronic products to guide the safety service of electrical and electronic products. Control the humidity in service to reduce the possibility of short circuits, electronic component failures and other faults caused by condensation.

5.Corrosive gases. This part is mainly aimed at the measurement of corrosive gas parameters of electrical and electronic products to guide the measurement of sulfur-containing Corrosion protection of electrical and electronic products in environments with corrosive gases such as hydrogen, sulfur dioxide, ammonia and nitrogen oxides.

6.Dust and sand. This part focuses on the measurement of dust and sand parameters of electrical and electronic products to guide the safe service of products in dust and sand environments. and control of sand conditions. Measurement methods for environmental parameters of electrical and electronic products Part

1 Scope

GB/T 10593.5-2025 is the Chinese national standard on method of the measuring environmental parameters for electric and electronic products - part 5: corrosive gas, in the field of testing. 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 1 August 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 February 2026. Classification: ICS 19.040, CCS K04. 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 corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide) that electrical and electronic products are exposed to during storage, transportation, and use. and ammonia) parameter measurement methods, mainly including measurement principles, reagents, equipment, operation procedures, analysis and calculation methods. This document is applicable to the measurement of corrosive gas environment parameters in places where electrical and electronic products are used.

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 8913-1988 Hygienic standard test method for sulfur dioxide in the atmosphere of residential areas - Tetrachloromercuric salt - Pararosaniline hydrochloride spectrophotometric Method

GB/T 11742-1989 Standard method for the determination of hydrogen sulfide in the atmosphere of residential areas - Methylene blue spectrophotometric method

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 corrosive gas Soluble gases in the air that are corrosive to electrical and electronic products.

4 General

The measurement methods of corrosive gas content include sensor monitoring method, online concentration monitoring method and offline manual detection method. The offline manual detection method is described, and the corrosion rate table of electrical and electronic products caused by corrosive gases in the service environment is given. The characterization method and environmental corrosivity classification, as well as the corresponding relationship table between corrosive gas concentration and corrosion grade, are shown in Appendix A. See Appendix B. Appendix C proposes a method for determining the corrosion rate in a corrosive gas environment. Some of the reagents involved in corrosive gas measurement are corrosive, toxic and environmentally polluting. You should fully understand the characteristics of each reagent before use. All reagent preparations

should be carried out in a fume hood, and operators should wear protective gear such as gas masks, goggles, and rubber gloves. Once it comes into contact with the skin, splashes into the eyes or is swallowed by mistake, handle it immediately according to the reagent specification and seek medical attention if necessary. Emission requirements are handled uniformly. The analytical method for the absorption liquid given in this document is spectrophotometry. Other analytical methods such as ion chromatography, inductively coupled plasma ionization, Daughter mass spectrometry, titration, etc. Note

1. Unless otherwise specified, the purity of all reagents in this document is analytical grade. Note

2. For the evaluation of uncertainty in the chemical analysis process, see the method for evaluating uncertainty in RB/T 030-2020.