GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 19.040

CCS K 04

GB/T 2423.16-2022 / IEC 60068-2-10:2018

Replacing GB/T 2423.16-2008

Environmental testing - Part 2: Test methods - Test J and guidance: Mould growth

环境试验 第 2 部分：试验方法 试验 J 和导则：长霉

(IEC 60068-2-10:2018, Environmental testing - Part 2-10: Tests - Test J and guidance: Mould growth, IDT)

Issued on: July 11, 2022 **Implemented on: February 01, 2023**

Issued by: State Administration for Market Regulation;
Standardization Administration of the People's Republic of China.

Table of Contents

Foreword

This document was drafted in accordance with the rules given in GB/T 1.1-2020, *Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents*.

This document is part 16 of GB/T 2423. For the issued parts of GB/T 2423, see Annex NA.

This document replaces GB/T 2423.16-2008 *Environmental testing - Part 2: Test methods - Test J and guidance: Mold growth*. Compared with GB/T 2423.16-2008, in addition to structural adjustment and editorial changes, the main technical changes are as follows:

a) Add the clause “Terms and definitions” (see Clause 3);

b) Change the content of “General description” of the test (see Clause 4, Clause 3 of the 2008 edition);

c) Change “0.01 mol” to “0.01 mol/L” (see 7.3).

This document is identical to IEC 60068-2-10:2018 *Environmental testing - Part 2-10: Tests - Test J and guidance: Mould growth*.

A clause “Terms and definitions” is added to this document.

The following minimal editorial changes are made to this document:

-- Change the name of the standard to *Environmental testing - Part 2: Test methods - Test J and guidance: Mould growth*, to be consistent with existing standards;

-- Add the titles of Table 2, Table E.1 and Table E.2;

-- Add the footnote: 1) The original text of IEC is “0.01 molar”. Because the unit of concentration – which should be mol/L – is incorrect in the 2008 edition, it is herein corrected (see 7.3);

-- Add Appendix NA (informative) Parts of GB/T 2423;

-- Replace ISO/IEC 17025:1999 with the informative reference GB/T 27025-2019 (see notes to 4.1 and F.5);

-- Replace ISO 846:1997 with the informative reference ISO 846:2019 (see 4.1, Table 1 and F.5).

Please note that some of the contents of this document may involve patents. The issuing organization of this document is not responsible for identifying patents.

This document was proposed and managed by the National Technical Committee 8 on Environmental Conditions of Electric and Electronic Products and Environmental Test of Standardization Administration of China (SAC/TC 8).

Drafting organizations of this document: China National Electric Apparatus Research Institute Co., Ltd., Guangdong Midea Consumer Electric Manufacturing Co., Ltd., Shenzhen Academy of Metrology & Quality Inspection, Guangdong Power Grid Co., Ltd. Guangzhou Power Supply Bureau Electric Power Test Research Institute, Nanjing Wuhe Test Equipment Co., Ltd., Shenzhen Polytechnic, Tsinghua Shenzhen International Graduate School, Chongqing ATEC Technology Co., Ltd., Aerospace Science and Industry Defense Technology Research and Test Center, Shanghai Electrical Apparatus Research Institute Group Company Limited, CCIC Southern Testing Co., Ltd., The Fifth Institute of Electronics, Ministry of Industry and Information Technology, Suzhou Electrical Apparatus Science Academy Co., Ltd., Electric Power Research Institute of Hainan Power Grid Co., Ltd., CenerTech Tianjin Chemical Research and Design Institute Co., Ltd.

Main drafters of this document: Chen Chuan, Zhu Chen, Yu Jianhong, Sun Xueming, Zhang Min, Zhang Dinghu, Yu Zhan, Wang Xilin, Zhang Jie, Zhang Wenchao, Guan Zhaojie, Ma Ping, Jia Zhidong, Wang Chunhui, Hu Chun, Chen Lincong, Guo Zhijia, Fang Jian, Zhang Shuangjun.

The previous versions of this document and the documents which are replaced by this document are as follows:

-- First issued in 1990 as GB/T 2423.16-1990, first revised in 1999, second revised in 2008;

-- This is the third revision.

Environmental testing - Part 2: Test methods - Test J and guidance: Mould growth

1 Scope

This document provides a test method for determining the extent to which electrotechnical products support mould growth and how any mould growth may affect the performance and other relevant properties of the product.

Since mould growth conditions include high relative humidity, the test is applicable to electrotechnical products intended for transportation, storage and use under humid conditions over a period of some days at least.

2 Normative references

No normative references are required in this document.

3 Terms and definitions

No terms and definitions need to be defined in this document.

4 General description

4.1 Background

Under certain climatic and environmental conditions, micro-organisms may settle on and colonize the surface of electrotechnical equipment. Their presence or their metabolic products may not only damage the equipment itself, but may also affect the equipment's operability and serviceability. The actions of micro-organisms on equipment are influenced by two different processes: direct action in which the deterioration of material serve as a nutritive substance for the growth of the micro-organisms and indirect action in which the metabolic products of the micro-organisms generate deterioration.

The preferred method for controlling the effects of micro-organisms is by the selection of materials that do not promote growth. Also acceptable is the treatment, or hermetic sealing, of potentially vulnerable materials and components. Additionally, equipment may not need to be evaluated if it is stored and/or operated throughout its entire life, in conditions unlikely to encourage the growth of micro-organisms. Only if these cannot

13 Final examinations

13.1 Visual examination

The specimens shall be examined (see 13.3), checked and/or photographed (as required by the relevant specification), immediately after they are removed from the container or humidity chamber, because the growth can change its appearance by desiccation. See Annex C, for recommended safety methods of handling.

Following a visual examination and assessment of the actual growth, the mycelium shall be carefully removed with ethanol 70% vol from the surface which shall then be examined through a microscope to assess the nature and extent of any attack (e. g., etching) on the specimen. See Annex C for recommended safety methods when removing the mould growth.

13.2 Effect of growth

When the relevant specification calls for electrical and/or mechanical checks while damp (following incubation), it is essential that the relative humidity of the surroundings of the specimen(s) shall not be allowed to fall unduly until after such checks have been made. The checks shall therefore be carried out on small specimens while still exposed in the container with the lid fitted and free water. For large specimens checks shall be made while they are still in the humidity chamber.

Note: When electrical connections have to be made or work has to be done on specimens in containers or humidity chambers with the lids or doors necessarily opened, this operation should be carried out with regard to the safety of operators. See Annex C for recommended safety methods of handling. Requirements of the manufacturer for operation under damp heat conditions given in the operation manual will be observed.

Similar checks shall be made on the specimens inoculated with spore suspensions and those inoculated with water only. Any significant difference between the two groups is considered to be additional due to the presence of mould growth as well as the high humidity.

Following the checks, the specimens shall be removed and visually examined as prescribed in 13.1 and finally any attack on the specimen shall be determined.

If the relevant specification prescribes checks after recovery, the specimens shall be removed from the container or chamber then visually examined as specified in 13.1 and then exposed to the specified conditions for recovery for a period of 24 h at the conclusion of which the checks shall be made.

12.3 Extent of growth

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------