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

GB/T 21551.1-2024

Replacing GB/T 21551.1-2008

**Antibacterial, antimicrobial and purification functions of
household and similar electrical appliances - Part 1: General
requirements**

家用和类似用途电器的抗菌、除菌、净化功能 第1部分：通则

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1 Scope

GB/T 21551.1 is the general part of the Chinese series on the antibacterial, antimicrobial and purification functions of household appliances, and it is the document that decides whether a marketing claim on a fridge, an air conditioner, a washing machine or a purifier can be made at all. It sets the terms and definitions that fix what antibacterial, antimicrobial, mould-proof and purification actually mean, the general requirements on the appliance and on the materials and components that carry the function, the general principles of the test methods including the test organisms, the culture conditions, the controls and the calculation of the reduction rate, the safety requirements arising from the antimicrobial agents themselves, and the rules on marking and on the claims that may be made and the evidence required for each. The specific parts, on antibacterial materials, refrigerators, washing machines, air conditioners and the rest, build on it. The 2024 edition replaces GB/T 21551.1-2008. For an appliance maker selling into China, this is the base document behind every hygiene claim.

This document specifies the hygiene and safety, and functional requirements for household and similar electrical appliances with the antimicrobial, microbial reduction and cleaning functions, as well as the marking requirements, and describes the corresponding test methods. This document applies to the research, development, production and inspection

of household and similar electrical appliances (hereinafter referred to as "household appliances") with one or multiple functions of antimicrobia, preventing mildew, antiallergen, antivirus, microbial reduction, dust mite reduction, allergen reduction, virus reduction and deodorization, etc. Other electrical appliances may take this as a reference. This document does not apply to.

---Appliances specifically designed for industrial use;

---Appliances intended for use in special environments where corrosive or explosive gases (such as. dust, steam and methane, etc.) are often present.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 4288-2018 Household and Similar Electrical Washing Machine

GB 4789.2 National Food Safety Standard - Microbiological Examination of Food. Aerobic Plate Count

GB/T 5296.2 Instructions for Use of Products of Consumer Interest - Part

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 Antimicrobia

3.1.1 antimicrobia The process of adopting chemical, physical and other methods to kill bacteria, fungi and other microorganisms, or hinder their growth and reproduction, and make them inactive. [Source: WS/T 466-2014, 3.14, modified].

3.1.2 antimicrobial materials Materials that have the functions of killing bacteria, fungi and other microorganisms, or hindering their growth and reproduction, and making them inactive.

3.1.3 antimicrobial rate In the antimicrobia (3.1.1) test, the reduction in the count of bacteria, fungi and other microorganisms, which is expressed as a percentage.

3.1.4 inhibition ring The antimicrobial agent in the material is continuously dissolved and diffused through agar to form different gradients, thereby inhibiting the growth of bacteria around it and forming a transparent circle.

3.1.5 preventing mildew The process of adopting chemical, physical and other methods to kill mold or hinder its growth and reproduction and make it inactive.

4.1 Hygiene and Safety Requirements

4.1.1 Hygiene and safety requirements for the whole machine Household appliances that are explicitly stated to have the functions, such as. microbial reduction and cleaning, have executable product-related standards, and the hygiene and safety of the whole machine shall comply with the standards implemented by the product. If there is no executable product-related standard, except for the special use conditions specified by the appliance, the hazardous substances that may be produced shall all comply with the requirements of Table 1.

4.1.2 Hygiene and safety requirements for components and parts For materials that are explicitly stated to have the antimicrobial function and are in contact with food or in close contact with the human body during use, the diameter of the inhibition ring shall not be greater than 10 mm (including the diameter of the sample piece).

4.2 Requirements for Antimicrobial, Microbial Reduction and Cleaning Functions

4.2.1 Functional requirements for materials and components and parts For materials that are explicitly stated to have the antimicrobial, preventing mildew, antiallergenic and antiviral functions, or components and parts made of antimicrobial materials, preventing mildew materials, antiallergenic materials and antiviral materials, the antimicrobial rate, preventing mildew level, antiallergenic rate and antiviral rate shall comply with the special requirements for materials and components and parts in GB/T 21551.2.

4.2.2 Functional requirements for the whole machine

4.2.2.1 Requirements for microbial reduction function For household appliances that are explicitly stated to have the microbial reduction function, the microbial reduction rate shall not be lower than 70%.

4.2.2.2 Requirements for dust mite reduction function For household appliances that are explicitly stated to have the dust mite reduction function, the dust mite reduction rate shall not be lower than 80%.

5 Test Methods

5.1 Safety Tips Microbiological laboratories shall comply with relevant provisions of biosafety standards and domestic regulations. The laboratories shall comply with the corresponding biosafety level requirements in GB 19489. The laboratories shall have a biosafety protection level that is compatible with the hazards;

5.2.1 Hygiene and safety tests of the whole machine

5.2.1.1 Requirements for sampling points If there are executable product-related standards for household appliances that are explicitly stated to have the microbial reduction and cleaning functions, the hygiene and safety-related tests shall be carried out in accordance with the methods described in the product standards. If there are no executable product-related standards for household appliances that are explicitly stated to have the microbial reduction and cleaning functions, the harmful substances they produce shall be tested in accordance with the following method.

5.2.1.2 General measurement instruments General measurement instruments for the test shall satisfy the following requirements.

5.2.1.3 Ozone leakage The ozone leakage is tested in accordance with the following steps.

5.2.1.4 UV leakage The UV leakage is tested in accordance with the following steps.

5.2.2 Hygiene and safety tests of components and parts For materials that are explicitly stated to have the antimicrobial function, the inhibition ring shall be tested in accordance with the test method described in Appendix A. For materials that are explicitly stated to have the antimicrobial function or components and parts containing antimicrobial materials, the toxicology test shall be carried out in accordance with the test methods described in the relevant standards.

5.3 Antimicrobia, Microbial Reduction and Cleaning Tests

5.3.1 Test of materials and components and parts For materials that are explicitly stated to have the antimicrobial, preventing mildew, antiallergenic and antiviral functions, or components and parts made of antimicrobial materials, preventing mildew materials, antiallergenic materials and antiviral materials, their antimicrobial rate, preventing mildew level, antiallergenic rate and antiviral rate shall be tested in accordance with the methods described in GB/T 21551.2.

5.3.2 Test methods for the whole machine

5.3.2.1 Test of microbial reduction function Household appliances that are explicitly stated to have the microbial reduction function shall be tested in accordance with the product standards they implement. Common microbial reduction methods specified in the promulgated national and industry standards are shown in Appendix B.

5.3.2.2 Test of dust mite reduction function Household appliances that are explicitly stated to have the dust mite reduction function shall be tested in accordance with the product standards they implement. Common dust mite reduction methods specified in the promulgated national and industry standards are shown in Appendix B. For household appliances that are explicitly stated to have the dust mite reduction function, if there are no