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WS

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

WS/T 683-2020

**Microbiological requirements for disinfection test
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

Drafting organizations of this standard. China Center for Disease Control and Prevention, Environmental and Health Related Product Safety Institute, Jiangsu Provincial Center for Disease Control and Prevention, Chinese People's Liberation Army Center for Disease Control and Prevention, Beijing Municipal Center for Disease Control and Prevention, Shandong Province Center for Disease Control and Prevention, Heilongjiang Province Disease Prevention and Control Center, Guangzhou Customs Technology Center.

1 Scope

This standard specifies the requirements for the preparation of disinfection test microorganisms, culture media, passage and preservation, bacterial suspension and bacterial carrier.

The microorganisms used in disinfection tests mentioned in this standard only include bacteria, fungi, mycobacteria and bacterial spores, and do not involve viruses and Alternatives to other microorganisms (eg enzymes, antigens, nucleic acids, etc.).

This standard applies to the use and preservation of various microorganisms (except viruses and substitutes) for disinfection testing.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB 18281.5 Biological indicators for sterilization of medical and healthcare products Part 5: Biological indicators for low-temperature steam formaldehyde sterilization GB/T 33417 Biological indicator test method for hydrogen peroxide gas sterilization GB/T 33419 Test method for biological indicator of ethylene oxide sterilization GB/T 33420 Test method for pressure steam sterilization biological indicator Disinfection technical specifications (2002 edition) Ministry of Health (Health Law Jianfa [2002] No. 282)

3.1 Source

The test microorganisms are derived from a qualified strain preservation institution and can be identified by conventional testing methods.

3.2.1 *Staphylococcus aureus*

The disinfection test uses *Staphylococcus aureus* as a representative of pyogenic cocci in bacterial propagules.

The commonly used strain is ATCC 6538; when the disinfectant disinfects the skin in a simulated field test, ATCC 27217 is used.

3.2.2 *Escherichia coli*

In the disinfection test, *Escherichia coli* was used as the representative of the intestinal bacteria in the bacterial propagation body, and the commonly used bacteria in the test was 8099;

Use 8099 or NCTC 10538 for hand disinfection simulation field test.

3.2.3 *Pseudomonas aeruginosa*

The disinfection test uses *Pseudomonas aeruginosa* as the most commonly isolated bacterial multiplier in nosocomial infections.

Table, the test strain is ATCC 15442.

3.2.4 *Staphylococcus albicans*

The disinfection test uses *Staphylococcus albus* as a representative of bacteria in the air, and the test strain is 8032.

3.3.1 *Candida albicans*

The disinfection test uses *Candida albicans* as a representative of pathogenic fungi, and the commonly used strain is ATCC 10231.

3.3.2 *Aspergillus niger*

In the disinfection test, *Aspergillus niger* was used as a representative of pathogenic fungi, and the commonly used species in the test was ATCC 16404.

3.4 *Mycobacterium*

The disinfection test is based on *Mycobacterium chelonae* subsp. abscessus, *Mycobacterium avium* (*Mycobacterium avium* subsp. avium) or *Mycobacterium terrae* as human *Mycobacterium tuberculosis* the representative of the test strain is *Mycobacterium chelonae* abscess subspecies CMCC (B) 93326 or ATCC.19977, *Mycobacterium avium* ATCC 15769, *Mycobacterium* ATCC 15755.

3.5.1 *Bacillus subtilis* black var. spores

In the disinfection test, *Bacillus subtilis* var. niger was used as the representative of bacterial spores.

The commonly used strain is ATCC 9372; when it is used to indicate the effect of dry heat sterilization, it meets the requirements of the "Disinfection Technical Specification" (2002 edition);

When indicating the sterilization effect of ethylene oxide, it meets the requirements of GB/T 33419.

3.5.2 *Bacillus stearothermophilus* spores

Geobacillus stearothermophilus (*Geobacillus stearothermophilus*) is an indicator of sterilization effect, and the strain is ATCC 7953 or SSI K31; when used to indicate the effect of pressure steam sterilization, it meets the requirements of GB/T 33420; when used to indicate the effect of hydrogen peroxide gas sterilization, Meet the requirements of GB/T 33417; when used to indicate the effect of low-temperature steam formaldehyde sterilization, it meets the requirements of GB 18281.5.

3.5.3 *Bacillus pumilus* spores

Bacillus pumilus is an indicator bacteria for sterilization or disinfection by ionizing radiation. The strain is E 601 or ATCC 27142.

Meet the requirements of "Disinfection Technical Specification" (2002 edition).

3.6 Other

According to the requirements of the disinfection test, other strains with equivalent resistance can be selected for the test.

4 Medium

4.1

Select the appropriate medium and reagents for the subculture and culture of bacterial species. See Appendix A for the medium and reagents required for the disinfection test.

4.2

The solid slant culture medium and flat plate prepared by the laboratory should be kept under refrigeration, and the storage period should not exceed 3 months, if there is water shortage, dryness, etc.

In case, destroy after sterilization. The liquid culture medium prepared by the laboratory should be sealed and refrigerated, and the storage period should not exceed 3 months.

Turbid, destroyed after sterilization.

4.3

Commercial plates, slopes and culture media are stored in accordance with the product instructions and used within the validity period.

5.1 Recovery and Passage