

Is Your Product Safe and Antibacterial?

In the post pandemic era, everyone increasingly favours antibacterial products that help protect health and the environment. Make sure your product is a safe, effective and antibacterial product, test now with STC to verify the **safety, antibacterial, and anti-mould effects** of your products.



How to choose the appropriate antibacterial testing method for products

Comprehensive consideration should be given to factors such as the material of the antibacterial product, the characteristics of the antibacterial agent used (e.g., dissolution / non dissolution), the requirements of the product's sales destination country, and the use of the product. A testing method that matches the characteristics of the antibacterial product should also be carefully selected.



Common Types of Testing Methods for Antibacterial Products

Qualitative Testing	Agar diffusion method	
Quantitative Testing	Water absorbent antibacterial products	Absorption method or impregnation method
	Non absorbent non porous antibacterial products	Film application method or film contact method
	Non dissolving antibacterial products	Oscillation method
	Liquid antibacterial agents	Suspension quantitative method
	Viscous antibacterial products	Carrier immersion quantitative method
	Spray type antibacterial products	Carrier spray method



Common Test Methods for Antibacterial Activity

Applicable Item	Daily necessities: Daily chemical products, disinfectant, hand sanitizer, disinfectant wipes, detergent, etc.	Home building materials: Ceramic, ceramic tile, paint, floor and other building materials.
Main Test Standards	<ul style="list-style-type: none"> • Technical Standard For disinfection (2002) • GB 15979 Hygienic standard for disposable sanitary products • ASTM E2315 Standard guide for assessment of antimicrobial activity using a time-kill procedure • WS/T 650 Evaluating method for efficacy of antibacterial and bacteriostasis • GB 19877.1 Special hand cleaner • GB 19877.2 Special bath agents and shower agents • GB 19877.3 Special toilet soaps 	<ul style="list-style-type: none"> • GB/T 21510 Antimicrobial property detection methods for nano-inorganic materials (Annex C) • GB/T 21866 Test method and effect for antibacterial capability of paints film • HG/T 3950 Antibacterial coating • JC/T 897 Antiseptic function of antibacterial ceramic • JC/T 939 Antibacterial property of antibacterial plastics pipes used for building • SN/T 2399 Evaluation method for antimicrobial metallic materials



Common Test Methods for Antibacterial Activity

Applicable Item	Textiles: fabric and other fabric suction products, clothing, carpets, furniture, bedding, etc.	Polymer materials: plastic, leather, silicone, foam, etc.
Main Test Standards	• GB/T 20944.3 Textiles - evaluation for antibacterial activity - part 3: shake flask method	• GB/T 31402 Plastics - measurement of antibacterial activity on plastics surfaces
	• ISO 20743 Textiles - determination of antibacterial activity of textile products	• ISO 22196 Measurement of antibacterial activity on plastics and other non-porous surfaces
	• JIS L 1902 Textiles - determination of antibacterial activity and efficacy of textile products	• JIS Z 2801 Antibacterial products - test for antibacterial activity and efficacy
	• ISO 20645 Textile fabrics - determination of antibacterial activity - agar diffusion plate test	• ASTM E2180 Standard test method for determining the activity of incorporated antimicrobial agent(s) in polymeric or hydrophobic materials
	• ASTM E3160 Standard test method for quantitative evaluation of the antibacterial properties of porous antibacterial treated articles	• GB/T 38017 Footwear and footwear components - test method to assess antibacterial activity
	• ASTM E2149 Standard test method for determining the antimicrobial activity of antimicrobial agents under dynamic contact conditions	• ISO 16187 Footwear and footwear components - test method to assess antibacterial activity
	• AATCC 100 Test method for antibacterial finishes on textile materials: assessment of	
	• AATCC 147 Test method for antibacterial activity of textile materials: parallel streak	
	• AATCC 174 Test method for antibacterial activity assessment of new carpets	
	• GB/T 23164 Antimicrobial activity assessment of carpets	
• FZ/T 73023 Antibacterial knitwear		
• FZ/T 62015 Antibacterial towel		



Common Test Methods for Anti-mould Activity

Applicable Item	Textiles, fibrous materials, paint films, plastics, wood plastics, wood products, man-made panels, non-porous
Main Test Standards	• GB/T 1741 Test method for determining the resistance of paints film to mold
	• GB/T 24346 Textiles - Evaluation for anti-mould activity
	• FZ/T 60030 Anti-mould activity assessment of home textile
	• GB/T 35469 Test method of anti-mould activity of building wood-plastic composites
	• GB/T 24128 Plastics - Assessment of the effectiveness of fungistatic compounds in plastics formulations
	• LY/T 2230 Standard method of evaluating the resistance of wood-based panels to mold
	• JC/T 2039 Antibacterial and mildew-proof wooden boards for decoration



Selection of Test Strains: Antimicrobial testing shall be carried out by selecting the strains specified in the standard. On the basis of the strains specified in the standard, additional strains may be selected according to the specific use of the antibacterial product or the special requirements of the test.

Items	Selection of Strain
Anti-bacterial Activity	Staphylococcus aureus ATCC6538, Escherichia coli 8099, ATCC25922, ATCC8739, Klebsiella pneumonia ATCC
Antifungal Activity	Candida albicans ATCC10231, Aspergillus niger ATCC16404
Anti-mould Activity	Aspergillus sp ATCC16404/CGMCC 3.5487, Penicillium sp ATCC9644/CGMCC 3.3875, Trichoderma sp ATCC28020/CGMCC 3.2941, Paecilomyces sp ATCC13435/CGMCC 3.5452, Cladosporium sp ATCC16022/CGMCC 3.9389, Aureobasidium sp ATCC9348/CGMCC 3.837



Common Test Methods for Antifungal Activity

Applicable Item	Main test standards
Fabrics and Fibers	• GB/T 39104.1 Textile - determination of antifungal activity of textile products - part 1: luminescence method
	• ISO 13629-1 Textile - determination of antifungal activity of textile products - part 1: luminescence method
	• GB/T 39104.2 Textiles - determination of antifungal activity of textile products - part 2: Plate count method
	• ISO 13629-2 Textiles - determination of antifungal activity of textile products - Part 2: plate count method
Ceramic and Non-porous Materials	• ISO 13125 Fine ceramics (advanced ceramics, advanced technical ceramics) - test method for antifungal activity of semiconducting photocatalytic materials
	• GB/T 37247 Test method of evaluating antifungal activity of photocatalytic materials and products
Synthetic Polymeric	• ASTM G21 Standard practice for determining resistance of synthetic polymeric materials to fungi



Toxicology Test: The dissolution of antibacterial products should be non-dissolution or micro-dissolution, should not harm human health.

Hygiene and Safety Performance Testing of Antibacterial Products	Test Methods
	<ul style="list-style-type: none"> • Acute oral toxicity test • Multiple complete skin irritation tests • Skin sensitisation test • Genetic toxicity test • Acute eye irritation test • Vaginal mucosal irritation test • Animal acute skin irritation test



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