



TORONTECH



FACE MASK BACTERIAL FILTRATION EFFICIENCY (BFE) TESTER

Face Mask Bacterial Filtration Efficiency (BFE) Tester ToronFM™ BFE is designed to evaluate the filtration efficiency of masks. It is suitable for use in calibration labs, research institutions, mask production facilities, and other relevant sectors.

Standard

1. ASTM F2100 Standard Specification for Performance of Materials Used in Medical Face Masks
2. ASTM F2101 Standard Test Method for Evaluating the Bacterial Filtration Efficiency (BFE) of Medical Face
3. YY 0469 Technical requirements for surgical mask
4. BS EN 14683 Medical face masks - Requirements and test methods
5. Mask Materials, Using a Biological Aerosol of Staphylococcus aureus
6. NBR 15052

APPLICATIONS

The Torontech ToronFM™ BFE is a specialized instrument for determining the Bacterial Filtration Efficiency (BFE) of medical face mask materials, in full compliance with standards like ASTM F2101 and EN 14683. Its primary application is to provide a precise, quantitative measure of a material's ability to act as a barrier against bacterial aerosols. This is a fundamental performance parameter for classifying medical masks and is essential for regulatory approval and ensuring the protection of both healthcare professionals and patients.

This critical performance test is a cornerstone of quality assurance and safety in:

- **Medical Device Manufacturing:** As a mandatory quality control and lot release test for manufacturers of medical and surgical face masks, providing the definitive data required to certify their products to the required BFE performance levels (e.g., Type I, II, or IIR).
- **Third-Party & Regulatory Testing:** For independent laboratories and government agencies to verify that face masks being sold in the market meet national and international public health and safety standards.

- **Non-Woven & Filter Media R&D:** As a primary research tool for developing and validating new filter materials, providing the quantitative data needed to prove their efficacy and optimize their performance for medical applications.
- **Healthcare & Institutional Procurement:** To perform incoming quality assurance and supplier validation, ensuring that the masks procured for use by healthcare workers and in sterile environments provide the claimed level of bacterial filtration and meet institutional safety protocols.

FEATURES

The negative pressure testing system ensures operator safety.

A peristaltic pump is integrated within the negative pressure cabinet, featuring two A & B routes and a 6-stage Andersen sampling head.

The peristaltic pump's flow rate is adjustable, as is the spray flow of bacterial liquid within the specialized microbial aerosol generator.

Key features include:

- Excellent atomization performance.
- Embedded high-speed industrial microcomputer control.
- 13.3" high-brightness color touch screen display.
- USB connector for data archiving.
- High-brightness lighting inside the cabinet.
- A front glass door with a sliding mechanism for easy observation.

TECHNICAL SPECIFICATIONS

Model	ToronFM™ BFE		
Key Specification	Specification Range	Resolution	Max. permissible errors

A Route Sampling Flow	28.3L/min	0.1L/min	Within $\pm 2.0\%$
B Route Sampling Flow	28.3L/min	0.1L/min	Within $\pm 2.0\%$
Spray Flow	(0.1~10)L/min	0.1L/min	Within $\pm 5.0\%$
Peristaltic Pump Flow	(0.001~3.0)mL/min	0.001mL/min	Within $\pm 2.0\%$
Negative Pressure of the Chamber	(-90~120)Pa	0.1Pa	Within $\pm 1.0\%$
Working Temperature	0-50°C		
Data Save Ability	>500000 sets (Scalable capacity)		
High Efficiency Particulate Air Filter Properties	$\geq 99.995\%$ @0.3 μm , $\geq 99.995\%$ @0.12 μm		
Median diameter of aerosol generator mass	Average diameter: $(3.0 \pm 0.3) \mu\text{m}$; Geometric Standard Deviation ≤ 1.5		
Double Routes 6-level Andersen Sampling apparatus	Level I: $>7 \mu\text{m}$; Level II: $(4.7\sim 7) \mu\text{m}$; Level III: $(3.3\sim 4.7) \mu\text{m}$; Level IV: $(2.1\sim 3.3) \mu\text{m}$; Level V: $(1.1\sim 2.1) \mu\text{m}$; Level VI: $(0.6\sim 1.1) \mu\text{m}$		
Size of Aerosol Chamber	600 × 80 × 3mm (Length × Diameter × Thickness)		
Total number of positive quality control sampler particles	$(2200 \pm 500)\text{cfu}$		
Negative Chamber Flow Speed	$\geq 5\text{m}^3/\text{min}$		
Size of Main Machine	1300 × 700 × 2100mm (L × W × H)		
Voltage	AC220V $\pm 10\%$, 50Hz (110V is also available)		
Noise of the Tester	<65dB(A)		
Weight	300kg		
Power Consumption	<1500W		



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