

DOES YOUR MASK OFFER THE RIGHT PROTECTION FROM THE RISKS?

Know the recognised consensus standards for medical face masks for the right level of protection



WEAR THE RIGHT LEVEL OF PROTECTION WITH MASKS MEETING ASTM STANDARDS



About ASTM International¹

- American Society for Testing and Materials
- ASTM was formed in 1898
- A diverse community of more than 30,000 of the world's top technical experts
- Over 12,000 ASTM standards are used around the world to improve product quality, enhance health and safety, strengthen market access and trade, and build consumer confidence

THE ASTM STANDARD: ASTM F2100-19²

Standard Specification for Performance of Materials Used in Medical Face Masks

This specification covers testing and requirements for materials used in the construction of medical face masks that are used in providing healthcare services such as surgery and patient care. It provides for the classification of medical face mask material performance.

Medical face mask material performance is based on testing for bacterial filtration efficiency, differential pressure, sub-micron particulate filtration efficiency, resistance to penetration by synthetic blood, and flammability.

Medical Face Mask Material Requirements by Performance LEVEL ASTM International Standard F2100-19 ²			
CHARACTERISTIC	LEVEL 1 BARRIER	LEVEL 2 BARRIER	LEVEL 3 BARRIER
Bacterial filtration efficiency, %	≥ 95	≥ 98	≥ 98
Resistance to penetration by synthetic blood, minimum pressure in mm Hg for pass result	80	120	160
Sub-micron particulate filtration efficiency at 0.1 micron, %	≥ 95	≥ 98	≥ 98
Differential pressure, mm H ₂ O/cm ²	< 5.0	< 6.0	< 6.0
Flame spread	Class 1	Class 1	Class 1

BACTERIAL FILTRATION EFFICIENCY (BFE)

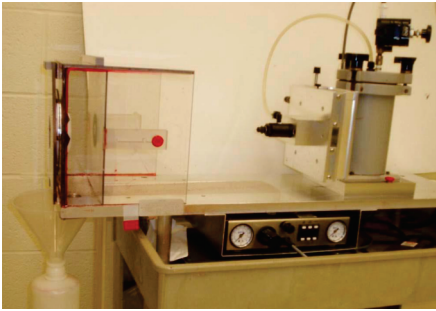
ASTM F2101-19: Standard Test Method for Evaluating the Bacterial Filtration Efficiency (BFE) of Medical Face Mask Materials³



- Determines the bacterial filtration efficiency (BFE) of medical face mask materials, employing a ratio of the upstream bacterial challenge to downstream residual concentration
- Staphylococcus aureus is the challenge material (based on its clinical relevance as a leading cause of nosocomial infections)
- **Higher the BFE, better the filtration efficiency, better the protection**

FLUID/SPLASH RESISTANCE

ASTM F1862-17: Standard Test Method for Resistance of Medical Face Masks to Penetration by Synthetic Blood⁴



- Evaluates the resistance of medical face masks to penetration by the impact of a small volume (~2 mL) of a high-velocity stream of synthetic blood
- Determines a medical face mask as pass/fail based on visual detection of synthetic blood penetration
- **Higher the pressure at which a mask passes, greater the fluid resistance**

PARTICULATE FILTRATION EFFICIENCY (PFE)

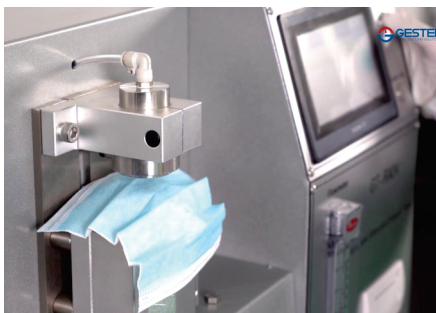
ASTM F2299-03(2017): Standard Test Method for Determining the Initial Efficiency of Materials Used in Medical Face Masks to Penetration by Particulate⁵



- Determines the initial particle filtration efficiency (PFE) of materials used in medical face masks by comparing the particle count in the feed stream (upstream) to that in the filtrate (downstream)
- Sample is challenged with 0.1 μm latex spheres at a flowrate of 28.3 litres per minute
- **Higher the PFE, better the filtration efficiency, better the protection**

BREATHABILITY

EN 14683:2019: Breathability or Differential Pressure



- Determines breathing resistance or differential pressure (ΔP) of disposable masks by measuring the differential air pressure on both sides of the mask using a manometer
- **Lower the ΔP , more breathable is the material**

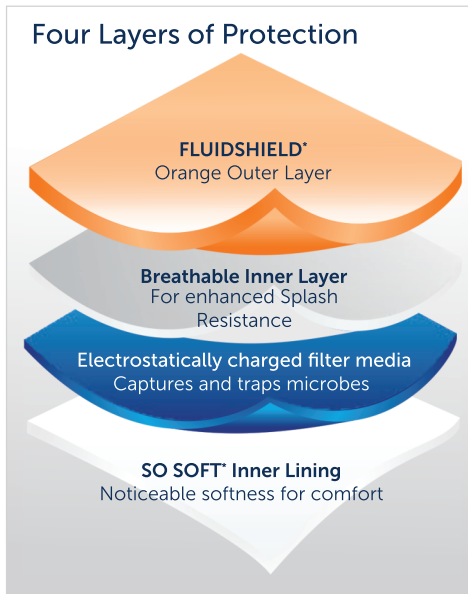
FLAMMABILITY

16 CFR Part 1610: Standard for the Flammability of Clothing Textiles⁶



- Determines flammability requirements that all clothing textiles must meet before sale or introduction into commerce
- Establishes three classes of flammability performance of textiles and textile products used for clothing
- **Class 1 is the least flammable.** If the material can even sustain a flame, it must take at least 3.5 seconds to burn the length of the sample.

DON'T WEAR THE RISK. WEAR HALYARD



Superior Protection Never Felt So Good

- Meets the ASTM F2100-19 Level 3 standard
- Fluid Resistance: 160mmHg
- BFE \geq 98%
- PFE \geq 98%
- Electrostatically charged filter media for protection
- Features smooth SO SOFT* inner lining for superior comfort
- Fog-free surgical masks
- Anti-glare and Anti-fog wrap-around visors

ASTM Level 3



Product code: 48207
FLUIDSHIELD* Level 3 Fog-free Surgical Mask



Product code: 48247
FLUIDSHIELD* Level 3 Fog-free Surgical Mask With Wrap-around Visor

The level of protection is clearly labelled on the mask nose piece and on the box, so you and your staff can easily identify the right mask for each task.

References: 1. <https://www.astm.org/about/overview/detailed-overview.html> as accessed on 4th Mar 2022, 2. ASTM F2100-19 Standard copy, 3. ASTM F2101 Standard copy, 4. ASTM F1862 Standard copy, 5. ASTM F2299 Standard copy, 6. Laboratory Test Manual for 16 CFR Part 1610 prepared by United States Consumer Product Safety Commission



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