## Surgical & Specialty Masks

| Product Name | Catalog Number | Filtration BFE[1] | Filtration PFE[2] | Breathability[3] (ΔP: mm $H_2O/cm^2$) | Anti-Fog Feature | Face Shield Availability |
|---|---|---|---|---|---|---|
| 3M™ Aseptex™ Molded Surgical Mask 1800+NL  | 1800+NL | >96% | n/a | <2.0 | n/a | — |
| 3M™ Tie-on Surgical Mask 1818  | 1818 | >99% | >95% | <2.0 | n/a |   |
| | 1818FS ▶ | >99% | >95% | <2.0 | Yes | |
| 3M™ Anti-fog Surgical Mask with Foam 1832  Fluid and splash resistant (80 mm Hg) ASTM | 1832 | >99% | >99% Submicron | <2.3 | Foam strip | — |
| 3M™ High Fluid-Resistant Tie-on Surgical Mask 1835  Highly Fluid and splash resistant (160 mm Hg) ASTM | 1835 | >99% | >99% Submicron | <2.8 | n/a |   |
| | 1835FS ▶ | >99% | >99% Submicron | <2.8 | Yes | |
| 3M™ Filtron™ High-Performance Tie-on Surgical Mask 1838  | 1838 | >99% | >95% | <2.0 | Duckbill style | — |

## Procedure Masks

| Product Name | Catalog Number | Filtration BFE[1] | Filtration PFE[2] | Breathability[3] (ΔP: mm $H_2O/cm^2$) | Anti-Fog Feature | Face Shield Availability |
|---|---|---|---|---|---|---|
| 3M™ Standard Procedure Mask 1826  | 1826 | >95% | n/a | <2.0 | n/a | — |
| 3M™ High Fluid-Resistant Procedure Mask 1840  Highly Fluid and splash resistant (160 mm Hg) ASTM | 1840 | >99% | >99% Submicron | <2.8 | n/a |   |
| | 1840FS | >99% | >99% Submicron | <2.8 | Yes | |

## N95 Healthcare Respirators

| Product Name | Catalog Number | Filtration BFE[1] | Filtration PFE[2] | Breathability[3] (ΔP: mm $H_2O/cm^2$) | Anti-Fog Feature | Face Shield Availability |
|---|---|---|---|---|---|---|
| 3M™ N95[4] Health Care Particulate Respirator and Surgical Mask-cone 1860 1860S  Highly Fluid and splash resistant (120 mm Hg) ASTM | 1860 | >99% | >95% (N95)[4] | <6.5 | Foam strip | — |
| | 1860S | >99% | >95% (N95)[4] | <6.5 | Foam strip | — |
| [4]3M™ N95[4] Health Care Particulate Respirator and Surgical Mask -three-panel, flat-fold 1870  Highly Fluid and splash resistant (160 mm Hg) ASTM | 1870 | >99% | >95% (N95)[4] | 4.9 | Foam strip | — |

[4] **N95 Respirator NIOSH Certified Filter Efficiency**
NIOSH particulate respirator approval requirements under 42 CFR 84: All particulate respirator filters are tested against 0.3-micron aerodynamic diameter particles (the most penetrating particle size), at 85 liters/minute. Therefore an N95 has a particulate filtering efficiency of 95% of the most difficult particle size (0.3-micron).

[1] **BFE % (Bacterial Filtration Efficiency)**

**InVitro: ASTM F2101-01**
A standard procedure for comparison of filtration materials. It measures the percent efficiency at which the facemask material restricts bacteria from passing through the mask. This test evaluates how well a respirator or surgical mask can prevent biological particles from being expelled by the wearer into the environment. The mask material is subjected to an aerosol of *Staphylococcus aureus* bacteria at a constant flow rate. Bioaerosol particles generated during the BFE test are "large" on the order of 1 to 5 microns in size with a mean diameter of 3 microns. A particle sieve sampler with agar plates measures bacteria with and without the mask material in place and a percent efficiency is calculated.

**InVivo: Modified Greene and Vesley Method**
Is a standard procedure for measuring the percent efficiency at which the facemask restricts bacteria from passing through the mask while wearing it on the face. A mask is placed on a person, and the concentration of exhaled bacterial particles with a mean diameter of 4 to 5 microns is measured both with and without the mask present. The test chamber, along with an Anderson sampler, captures microorganisms that escape and the percent efficiency is calculated.

**Note:** particles used for Respirator Filtration Efficiency tests are much smaller, approximately 0.3 microns in size. The BFE test is a relative indicator of the performance of a medical, surgical or patient care mask but the results cannot be compared to Respirator Certification Filtration Efficiency.

[2] **PFE % (Particulate Filtration Efficiency)**

This **In Vitro Latex Particulate Challenge Test ASTM F2299-03 (ASTM F 1215-89)** is a standard test method that measures the percent efficiency at which the facemask restricts particulate matter from passing through the mask. It measures the filter efficiency of a surgical or patient care mask against an aerosol created from a solution of water and latex spheres with a mean diameter of 0.1-micron particles at a flow rate of less than 30 litres per minute (LPM). Particle counts of the upstream and downstream flows are measured with a laser particle counter. This testing provides an evaluation of Submicron Efficiency Performance, when the material is greater than or equal to 98%.

**Note:** Particulate Respirator Filters are tested against particles of approximately 0.3 microns in size at 85 LPM. Because the test conditions are not the same, the filter efficiency results of these two types of testing cannot be compared.

[3] **Breathability, Delta P (ΔP)**

The pressure drop across a facemask, expressed in mm water/cm?. The higher the Delta P, the more difficult the mask is to breathe through.

The **Method 1 Military Specifications, MIL-M- 36945C 4.4.1.1.1** The specimen mask materials are placed in a special test fixture that measures the pressure on both the inlet and exit sides of the mask during a forced flow of air through the mask. The differential pressure drop across the mask is then measured.

**Note:** the MIL-M- 36945C 4.4.1.1.1 testing method differs from other Breathability testing methods. These values are on different scales and parameters and cannot be compared.

**Fluid Resistance**

The ability of a facemask's material construction to minimize fluids from traveling through the material and potentially coming in contact with the user of the facemask. Fluid resistance helps reduce potential exposure to blood and bodily fluids caused from splashes, spray or spatter.

**ASTM F 1862-00a** is a standard test method for resistance of medical facemasks to penetrate synthetic blood. An actual mask is conditioned in a high humidity environment to simulate human use and is placed on a test holder. Synthetic blood (2cc) is shot horizontally at the mask at a distance of 30 cm (12 inches). Surgical masks are tested on a pass/fail basis at three velocities corresponding to the range of human blood pressure (80, 120, 160 mmHg). The inside of the mask is then inspected to see if any synthetic blood has penetrated to the inside of the mask. Fluid resistance according to this testing method is when the device passes at any level.

References:


1. FDA Guidance for Industry and FDA Staff, Surgical Masks. www.fda.gov/cdrh/ode/guidance/094.html
2. ASTM Standard Specifications for Performance of Materials used in Medical Face Mask
3. NIOSH (The National Institute for Occupational Safety and Health), Table 2.
4. Modified Greene and Vesley, Nelson Laboratories, Inc. Salt Lake City, UT
5. Latex Particle Challenge test method. Nelson Laboratories, Inc. Salt Lake City, UT..

| Attachment Design | Style | Additional Features |
|---|---|---|
| Single elastic band | Cone-molded | Latex free |
| Tie-on (Horizontal) | Bi-directional pleats | Our most popular, Soft, High comfort |
| Tie-on | Bi-directional pleats | Our premium anti-fog, anti-reflective face shield |
| Tie-on | Bi-directional pleats | Closed-cell, medical grade foam anti-fog strip |
| Tie-on | Bi-directional pleats | Superior fluid resistance and breathability |
| Tie-on | Bi-directional pleats | Anti-fog face shield, Black anti-glare strip |
| Tie-on | Duckbill style | Fog-free design, Off-the-face comfort |
| Earloop | Standard pleats | Economical, Convenient earloop attachment |
| Earloop | Bi-directional pleats | Superior fluid resistance, OR compatible |
| Earloop | Bi-directional pleats | Anti-fog face shield, Black anti-glare strip |
| Double | Cone-molded elastic band | Standard size surgical/laser mask |
| Double elastic band | Cone-molded | Small size |
| Double elastic band | Flat fold, three-panel | Soft inner liner, Individually packaged surgical/laser mask, Single dispensing |

For more information contact your 3M Infection Prevention Solutions representative or call 1 800 3M Helps.
You can also visit us online at www.3M.com/CA/IP.


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# Infection Prevention Solutions

## Face Masks and Respirators

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*Proven performance.*
*Breathable comfort.*

- Surgical & Specialty Masks
- Procedure Masks
- N95 Healthcare Respirators