



FACTSHEET  
Face mask testing

*As part of our response to the global COVID-19 health crisis, the National Measurement Institute (NMI) established NATA accredited testing capabilities against the Australian standard for surgical face masks, AS4381:2015. This includes Bacterial Filtration Efficiency, Differential Pressure Drop (breathability) and Synthetic Blood Penetration (fluid resistance).*

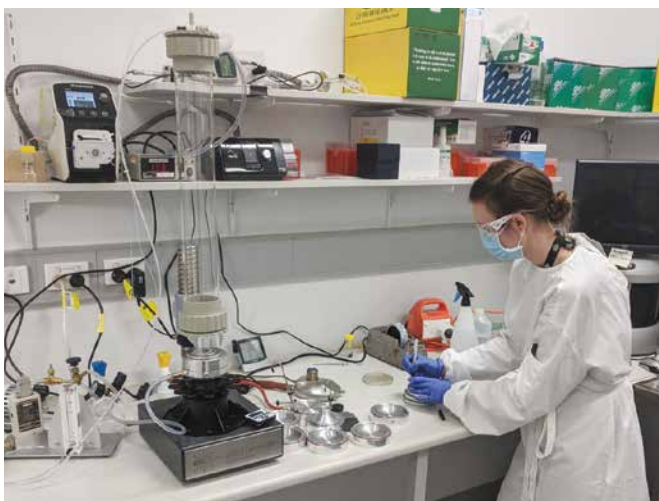
Face masks are regulated by the Therapeutic Goods Administration (TGA) as medical devices when they are claimed to be used for the prevention of transmission of disease between people, or are claimed to be suitable for therapeutic use. The TGA requires medical devices to be registered on the Australian Register of Therapeutic Goods (ARTG) before being supplied within, imported into or exported from Australia.

Mask performance often requires compromise between competing aspects: filtration and fluid-resistance come at the expense of breathability. Accurate testing supports manufacturers seeking to optimise their mask design, and suppliers seeking to provide confidence to their market.

### *NMI's Capabilities:*

#### **Bacterial Filtration Efficiency (BFE)**

This tests whether face masks are protecting people from biological aerosols. A contagious person may release aerosols by sneezing, coughing or even just breathing, even if asymptomatic. The resulting tiny droplets carry and spread virus particles or microorganisms. AS4381 testing at NMI simulates typical exhaled aerosols to determine how effectively the masks create a protective barrier for the wearer under realistic conditions of humidity and breathing rate.



#### **Differential Pressure Drop (DP)**

This tests the “breathability” of face masks by accurately measuring the pressure drop through the multilayer fabric under realistic flow and humidity conditions. If this pressure drop is too large, the wearer may experience breathing stress with extended use, risking user compliance. Further, air flow may bypass the mask around its edges, impairing its filtration effectiveness.

#### **Synthetic Blood Penetration**

This tests the ability of a face mask to resist the penetration of body fluids capable of transmitting disease, such as vomit, sputum, mucus or blood. A few millilitres of synthetic blood, with a surface tension appropriately adjusted to simulate that of body fluids (about half that of water), is directed at the mask surface at specified velocities. Any evidence of penetration is then noted.

### *For More Information:*

Phone: 1300 722 845

Email: [customerservice@measurement.gov.au](mailto:customerservice@measurement.gov.au)

Website: [www.measurement.gov.au](http://www.measurement.gov.au)

#### **References & Additional Information:**

- <https://www.tga.gov.au/behind-news/regulation-personal-protective-equipment-and-covid-19>
- <https://www.tga.gov.au/face-masks-and-respirators-are-regulated-tga>