

SwRI TACKLES MASK SHORTAGES

SwRI has taken techniques and technology developed to support clean air initiatives and applied them to address mask shortages during the COVID-19 pandemic. Our engineers and scientists have pioneered measuring and characterizing fine, ultrafine and nanoparticle mass and number in vehicle emissions. This expertise put us in a unique position to help characterize the filtration performance and flow of emergent supplies of face masks and N95 and KN95 respirators acquired during the COVID-19 crisis. Turns out, the airborne viral particles are roughly the same size as the particles our emissions specialists measure in vehicle exhaust. The team is doing this work for companies and health organizations.

SwRI's state-of-the-art particle calibration laboratory includes instruments to measure particle number, surface area, mass, size and morphology. The Institute-developed universal particle generator creates a variety of particles for research and instrument calibration, allowing us to determine what level of protection new supplies of facial masks could provide and if they meet standards.

DM24333_5811



Flow rate = breathability
N95 have very high flow rate

N95 masks
Filter 95% particles
Good breathability

SwRI generates particles
Specific size distribution
for testing and calibration

SwRI counts particles
Upstream & downstream
of filter material

American Association for Laboratory Accreditation
SwRI's laboratory is the only facility fully accredited to ISO/IEC 17025

SwRI particle size capabilities
Measure 10-10,000 nanometers (nm)
COVID-19 Virus: 70-100 nm

SwRI certified mask decontamination technique
Allowing safe reuse of N95 masks

SwRI certified filtration performance
Identified media combinations with 99% filtration efficiency

SwRI testing revealed
8 out of 11 KN95 respirator samples were counterfeit and failed to meet the U.S. standards

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