



Mask Filtration Efficiency

SOUTHWEST RESEARCH INSTITUTE®

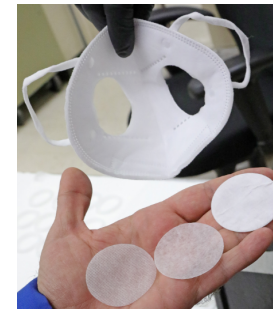
Imad Khalek, Ph.D., Sr. Program Manager

lkhalek@swri.org

6/25/2020

Mask Filtration Efficiency

- Whirlpool decontamination of N95 masks using heat exposure:
 - No deterioration in filtration efficiency even after 20 heat cycles (45 minutes each)
- Testing of University Health System mask indicated performance equivalent to an N95
- Numerous pro-bono projects for various companies and organizations
 - N95, KN95 respirator masks,
 - ASTM and FDA surgical masks, and
 - Masks used by the general public
- Turn-around time was 1-2 days
- Staff excited about the transition to offer such service during the pandemic



MASK FACTS

- Not All N95 masks are created equal:
 - Efficiency ranges from 95% to 99.9%...a BIG DEAL
- Testing according to FDA and ASTM are very different from each other:
 - A mask may pass FDA method but fail the ASTM method...STRANGE
- NIOSH method is extraordinarily stringent
 - Good in good times, but challenging in pandemic times
 - May need to be updated
 - Difficult to find and qualify alternative materials
- KN95 counterfeits flooded the US market and added fuel to the fire
 - 73% Failed to meet N95 equivalency
- General public uninformed on the performance of the masks they are wearing
 - Efficiencies range from 9% to 90% (if you are lucky)
 - Masks are not tested for exhalation efficiency