Sanders Containment Filter

Updated March 16, 2020 – Scott Sanders

FROM THE DESK OF

SCOTT SANDERS, *President*

Sanders Inc.

March 8, 2020

Containment Filter

White Paper

Sanders Containment Filter's ability to capture and hold particles the size known pathogens is a true breakthrough in filtration. This new Containment filter is available to fill the gap between a viral outbreak's beginning and the time it takes to create a vaccine and it's distribution. This will greatly enhance our ability to contain the spread of respiratory viruses. The Containment Filter should be used immediately after an outbreak is recognized, during the period before a vaccine is developed and available to the general public.

Airborne contamination is a complex mode of transmission where many of the remaining communicable diseases are able to enter our body and cause harm. Airborne Transmission has the highest rate of transmission possible, indirect, person-to-person. This process is explained in the ASHRAE Position Paper, "Airborne Infectious Disease," 2009 (*see Appendix A)*. This document stipulates that Measles, Mumps, Influenza, and TB are all spread as Airborne Droplet Nuclei, submicron particles. A 2013 study conducted by the University of Maryland (*see Appendix B*), concluded that there are nine (9) times more culturable virus in the humidity exhaled from the lungs of a person infected with the flu, than in a cough or sneeze. We know that the coronavirus CoV-19 is spread as a respiratory disease similar to the flu. The new test kits for the corona virus recommends swabbing the inside the upper nose. If not airborne, or exhaled from the lungs, how would the virus be most prevalent in the inside of the upper nose?

One incident during the SARS Corona Virus outbreak in Hong Kong was found to infect over 100 people and killed 41 due to a sub-micron airborne cloud of virus in fecal particles that spread over very long distances as aerosols, created after a toilet flush from 1 infected person. The main method of Droplet Nuclei airborne transmission is by indirect contact in the same air space that was occupied by an infected person, earlier.

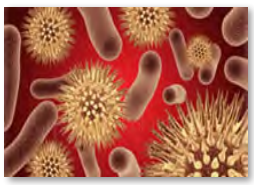
Identification of contagious individuals is not always possible during this outbreak, because people can go many days without symptoms. In order to combat this issue, we must protect ourselves from the undiagnosed or pre-diagnosed patient. These are truly the people who unknowingly spread the disease. During a respiratory outbreak, ***we must assume the air is contaminated, since we cannot be assured that it is not***.

Sanders Containment Filter is a new, synthetic filter developed and now available, that has efficiencies ***higher than HEPA***, 99.99980% @ 0.1 micron. Independently tested on virus VFE. *This* filters main advantage is that, unlike old, hard-sided, micro-fine glass HEPA's, it is a soft flexible pad with ***a very low static pressure***, .17 W.C. @ 125 cfm/sq. ft. For the first time, this allows for HEPA or near HEPA filtration of the return air duct directly, in any room. This means that now all rooms may be filtered with HEPA air quality without any reconstruction costs of transforming the HVAC unit these works on all installed units. By attaching this pad over every return vent or at the main unit, you will capture most particles the size of known pathogens, as it is about to enter the HVAC system (*source capture*). The media is available in roll form and can be cut to fit in the field; this provides a user friendly, cost effective solution, never available before.

For large common areas like at airports, schools or convention centers, the filter would be cut into circles and placed on the air entering ports of a low or high velocity floor fan, up to 3000 cfm. This could easily be life saving technology when there is not an outbreak as well, preventing the airborne spread of more common disease, like Norovirus, Measles, Mumps, TB. This is not limited to hospitals, but also should be considered in schools, cruise lines, Dr, offices and any other common well-populated areas. This new method of prevention is no different than hand washing or vaccines; it removes particles the size of known pathogens thereby removing it from the air, prevent the illness from being inhaled and entering the body, therefore preventing catching the disease. Sanders Containment Filter is a new innovative breakthrough in air filtration that will totally change the way we think about clean air.

Sanders INC.
innovation in filtration

A new and unique method to help contain and remove particles, the size of known pathogens from facilities

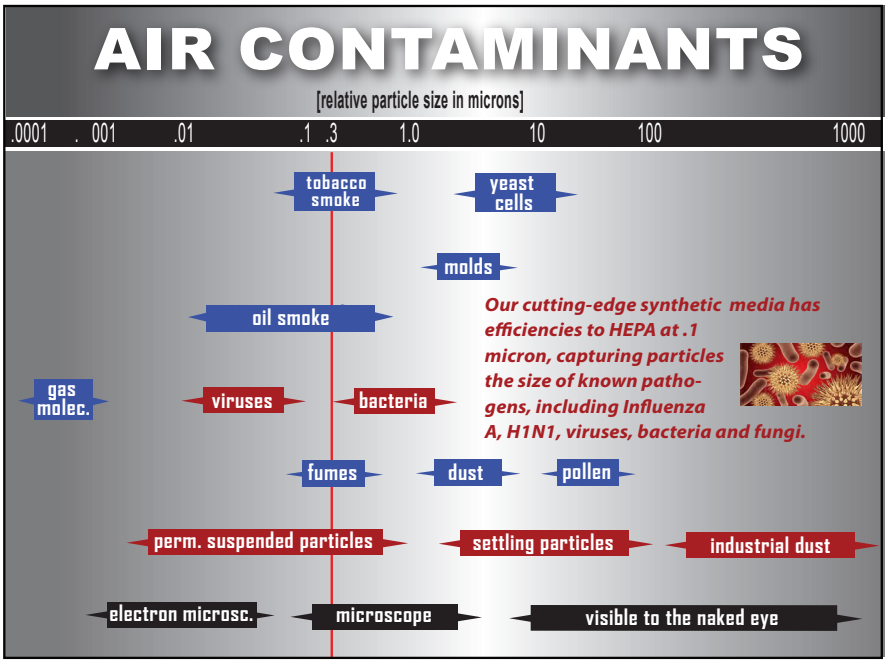


CONTAINMENT FILTER

by Sanders, Inc.

For the first time, a filter allows for HEPA or near-HEPA filtration without the need for a retrofit of the HVAC system or holding frame.

Our filter is a soft, flexible pad with a very low static pressure, unlike rigid micro-fine glass HEPA filters.



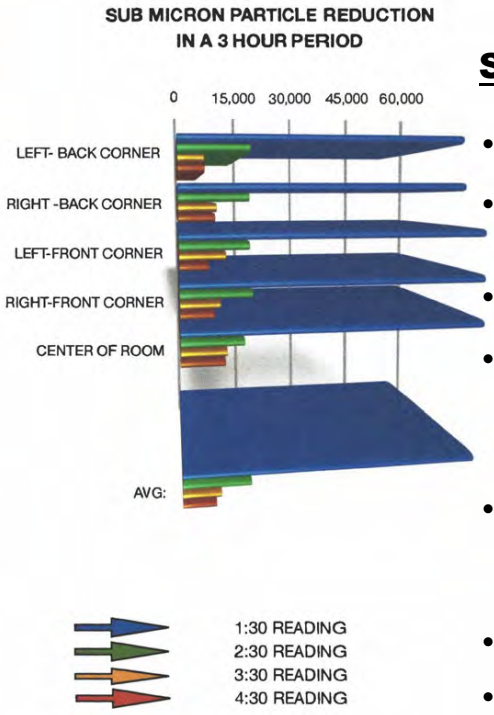
"Manufacturing the highest-quality synthetic air filters in the industry"

www.sandersfilters.com
info@sandersfilters.com

Nov 4, 2015
FLOOR DRYER TEST RESULTS
100 SERIES CONTAINMENT FILTER MEDIA, 8" ROUND X 2, ON A 600 CFM FLOOR DRYER

	TIME OF READING: (Numbers represent sub micron particles per liter of air)			
	1:30 PM	2:30 PM	3:30 PM	4:30 PM
LEFT- BACK CORNER	51,500	12,600	4,600	4,600
RIGHT -BACK CORNER	52,000	12,300	6,600	6,300
LEFT-FRONT CORNER	56,100	12,300	8,100	5,100
RIGHT-FRONT CORNER	56,100	12,800	7,100	6,100
CENTER OF ROOM	56,000	11,300	8,100	7,800
AVG:	54,300	12,260	6,900	5,980

RESULTS: 89% REDUCTION
IN SUB MICRON PARTICLES.



Sanders Containment Filter

- High efficiency submicron filtration has n ever been possible with a flat cut pad.
- The unpatrolled ease of use from a high efficiency submicron air filter, is now possible, by placing the Sanders
- Containment filter over the air entering ports of a floor dryer.
- This allow for immediate and convenient sub-micron filtration of any inhabited area. Scrubbing particles the size of known pathogens from any inhabited area.
- No retrofit to the existing HVAC system is required. Large common areas such as airports, schools, hospitals. Cruse ships, Dr. offices.
- Pre diagnosed people require AIR rooms that can be immediately created.
- Military barracks, or border retention holding areas.
- Literally anywhere people congregate or pass through should be filtered.

During a viral respiratory disease outbreak, "***we cannot guarantee the air we breathe is clean, so we must assume it is not".***

This current outbreak has brought to our immediate attention a problem we have never truly addressed.

Airborne transmission has existed for many years, the outbreaks of Influenza, Measles, Mumps, Norovirus, and TB. And many others. The list is very large of the number of disease spread at least in part, as an Air-borne Droplet Nuclei sub-micron size pathogen.

These sub-micron size virus and bacteria are so small they act more a gas than a particle that allows them to stay suspended for hours or days. Viral shedding, humidity containing virus from an exhaled breath, of an infectious patient, a plume from a toilet flush and many other common activities can and do created aerosol that spread these disease.

Understanding this complex mode of transmission is crucial to slowing the spread of the disease, reducing deaths and human suffering.

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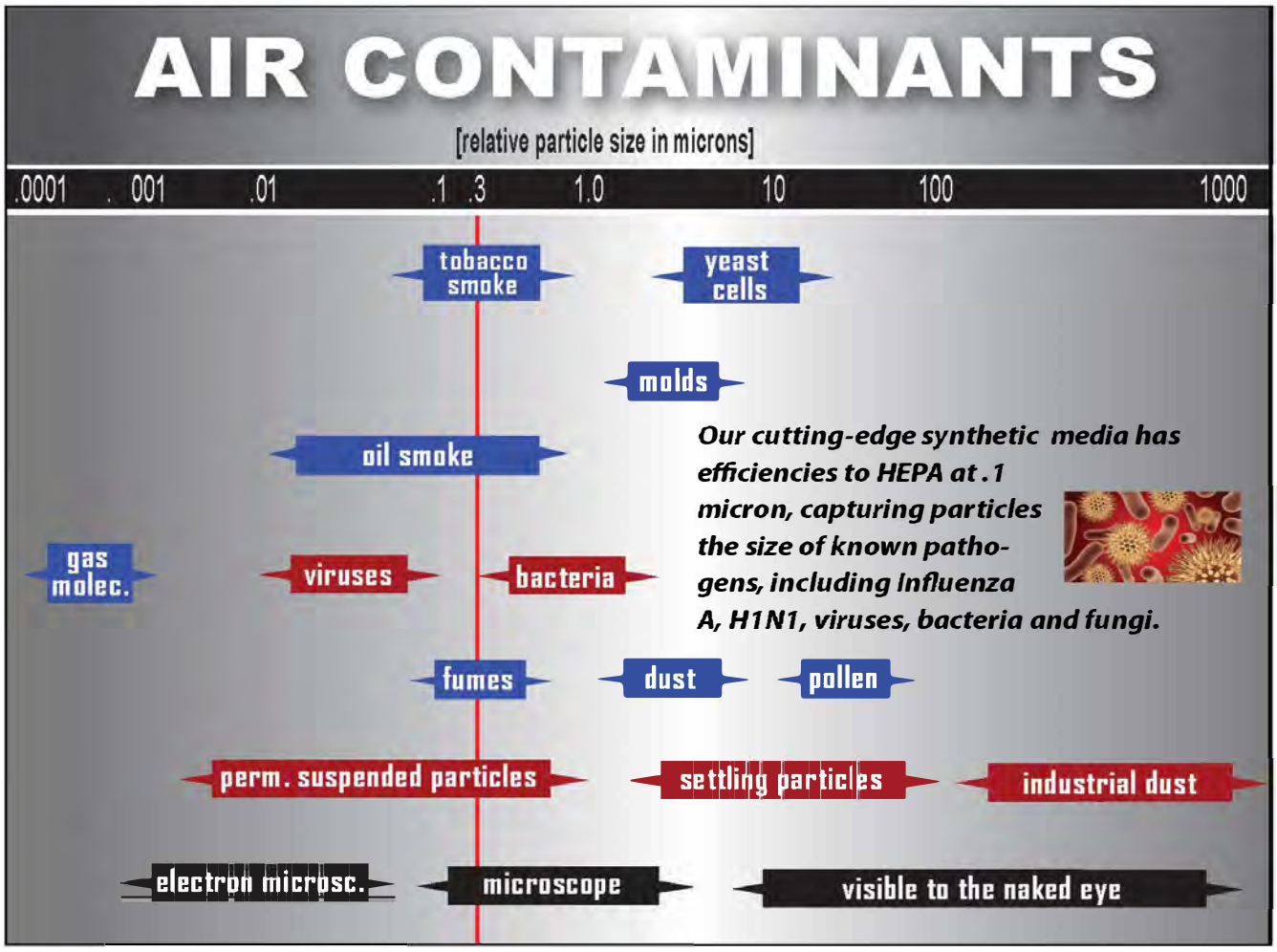
AIR CONTAMINANTS
[relative particle size in microns]
.0001
.001
.01
.1
.3
1.0
10
100
1000
tobacco smoke
yeast cells
molds
oil smoke
Our cutting-edge synthetic media has efficiencies to HEPA at .1 micron, capturing particles the size of known patho-gens, including Influenza A, H1N1, viruses, bacteria and fungi.
gas molec.
viruses
bacteria
fumes
dust
pollen
perm. suspended particles
settling particles
industrial dust
electron microsc.
microscope
visible to the naked eye

Sanders Inc.
100 Series, Containment Filter

TECHNICAL DATA	WEIGHT	COLOR	MATERIAL COMPOSITION
Medical Containment Media	100 g/m^2 15 g/m^2	WHITE WHITE	BLENDED SYNTHETIC FIBER SPUNBOND POLYPROPYLENE *(other colors available)*
TOTAL MEDIA WEIGHT	105 g/m^2		
AVAILABLE FORMS	SINGLE OR DOUBLE LAMINATED SCRIM / MELTBLOWN MEDIA ROLLS, SHEETS, COILS (SLIT TO WIDTH) & FABRICATED PARTS (INCLUDING HEAT SEALED OR WELDED)		

FILTRATION PERFORMANCE		
NaCl Penetration at 95 LPM	<20.00%	*Tested in accordance to TSI8130 NaCl 0.1 micron particle size*
NaCl Efficiency at 95 LPM	> 80.00%	*Tested in accordance to TSI8130 NaCl 0.1 micron particle size*
Pressure Drop at 95 LPM	< 2.1 mm H_2O	*Tested in accordance to TSI8130 NaCl 0.1 micron particle size*
BFE Efficiency***	> 99.967%	*Tested in accordance to Spec MIL-M-36954C By Nelson Labs*
VFE Efficiency***	> 99.950%	*Tested in accordance to Spec MIL-M-36954C By Nelson Labs*
Air Permeability**	> 275 CFM	*Tested in accordance to ASTM Spec ASTM D373*

TESTING APPARATUS / SAMPLE SIZE:

***RIG:** TS18130 AUTOMATED LASER PARTICLE COUNTER

SAMPLE SIZE: 100 cm^2

****RIG:** TEXTEST FX3300 AIR PEREABILITY TESTER

****VFE Efficiency = Viral Efficiency through a single pass of air*
****BFE Efficiency = Bacterial Efficiency through a single pass of air*

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Sanders Filters Inc.

TECHNICAL DATA SHEET

PRODUCT ID: *Sanders 250 Series testing*

TECHNICAL DATA	WEIGHT	COLOR	MATERIAL COMPOSITION
Sander 250	250 g/m^2	WHITE	BLENDED SYNTHETIC FIBER
SCRIM	15 g/m^2	WHITE	SPUNBOND POLYPROPYLENE *(other colors available)*
NETTING	180 g/m^2	CLEAR	
TOTAL MEDIA WEIGHT	445 g/m^2		
AVAILABLE FORMS	SINGLE OR DOUBLE LAMINATED SCRIM / MELTBLOWN MEDIA ROLLS, SHEETS, COILS (SLIT TO WIDTH) & FABRICATED PARTS (INCLUDING HEAT SEALED OR WELDED)		

FILTRATION PERFORMANCE		
NaCl Penetration at 32 LPM	< 0.50%	*Tested in accordance to TSI8130 NaCl 0.1 micron particle size*
NaCl Efficiency at 32 LPM	> 99.50%	*Tested in accordance to TSI8130 NaCl 0.1 micron particle size*
Pressure Drop at 32 LPM	< 1.6 mm H_2O	*Tested in accordance to TSI8130 NaCl 0.1 micron particle size*
BFE Efficiency***	> 99.99995%	*Tested in accordance to Spec MIL-M-36954C By Nelson Labs*
VFE Efficiency***	> 99.99980%	*Tested in accordance to Spec MIL-M-36954C By Nelson Labs*
Air Permeability**	> 85 CFM	*Tested in accordance to ASTM Spec ASTM D373*

TESTING APPARATUS / SAMPLE SIZE:

***RIG:** TS18130 AUTOMATED LASER PARTICLE COUNTER

SAMPLE SIZE: 100 cm^2

****RIG:** TEXTEST FX3300 AIR PEREABILITY TESTER

****VFE Efficiency= Viral Efficiency through a single pass of air*
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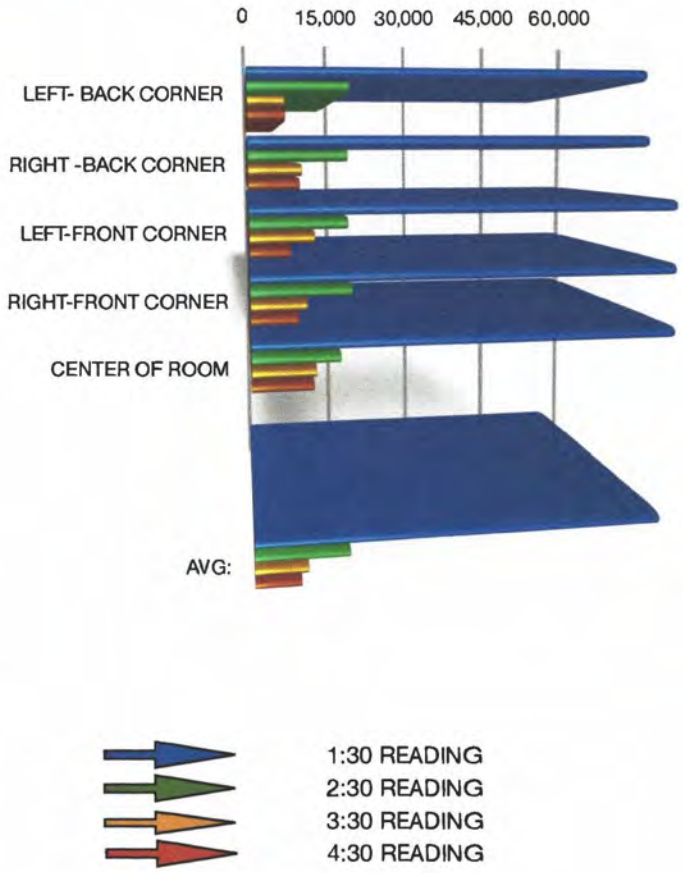
SUB MICRON PARTICLE REDUCTION IN A 3 HOUR PERIOD



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