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VIRUSKILLER®

Unparalleled Air Purification + Sterilisation

The VK Sterilisation Technology Explained

WWW.RADIC8.COM.au

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The pictured product line up all contain the Patented VK reactor cell sterilisation technology.



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Comparison

Industry Standard Premium Air Purifier

Airflow output

Blue "power on" Light

Easy-to-change filters
-no tools required

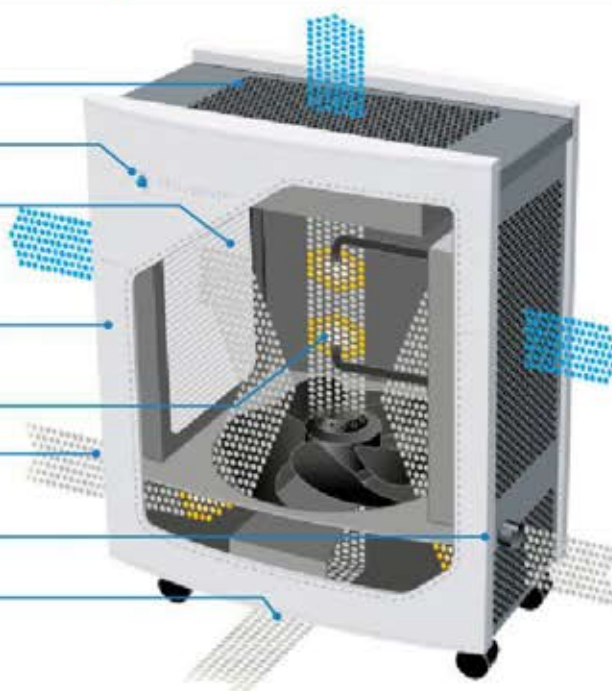
Galvanized Swedish
steel housing

Ion brushes (no ozone generated)

Airflow intake

Speed control knob

Power source and cord



DISPLAY AND MONITORING

- 4 Way Wind Direction
- 16ea LED Display

SILENCER

- Noise Cancelling Silencer For Whisper Quiet Operation

REACTOR CELL

- 8 - 16 Super UVC Lamps
- Mirrored Coating For Ultimate Reflection
- 72 - 135 TiO2 nano Tube filters for generator
-OH Radical (world's strongest oxidant)
- Loose Activated Carbon Inside Tube Filters
Absorbs Odours And Pollutants Allowing
PCO to Decompose

VENTILATION

- Double Inlet Sirocco Fan
- 5. pressure 78mmAq 16m /min

COMPLEX FILTERS

- HEPA filter 50mm coated nano silver
- Medium filter 25mm coated nano silver (option)
- Carbon Filter 20mm
- Pre filter 5mm

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How we get such results... The technology

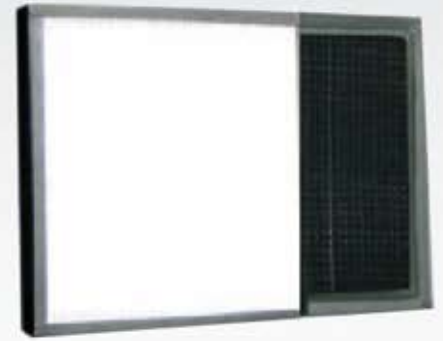
It begins with the *complex filter set*.
This is efficient on its own and not what we class as
"The Technology"



VK Medi Range houses the world's thickest HEPA filter Plus various other filters



VK 002 & 102 Various mechanical filters
Optional nano silver



VK Blue Pre Filter + Hepa filter at front, Acitvated Carbon at rear

The principle of our *technology is UVC light* and based on Albert Einsteins *Photon Energy*.



$$\text{Phonon Resonance (Hz/Cm)} = \sqrt[3]{\frac{d \times Na}{m}}$$

d - density in g/cm³
Na - Avogadro's Constant
m - atomic mass

$$\text{Resonant Temperature (°C)} = \frac{\text{Ln} \left(\frac{f(\text{starting})}{f(\text{target})} \right)}{Ec} + St$$

f - frequency in Hz
Ln - natural logarithm
Ec - expansion coefficient
St - standardized temp in °C

The efficiency of the *UVC light* in our reactor chamber is increased several times by utilising Fresnel's equations for reflection and transmission. The inside of the reactor chamber has a *chrome mirror coating*



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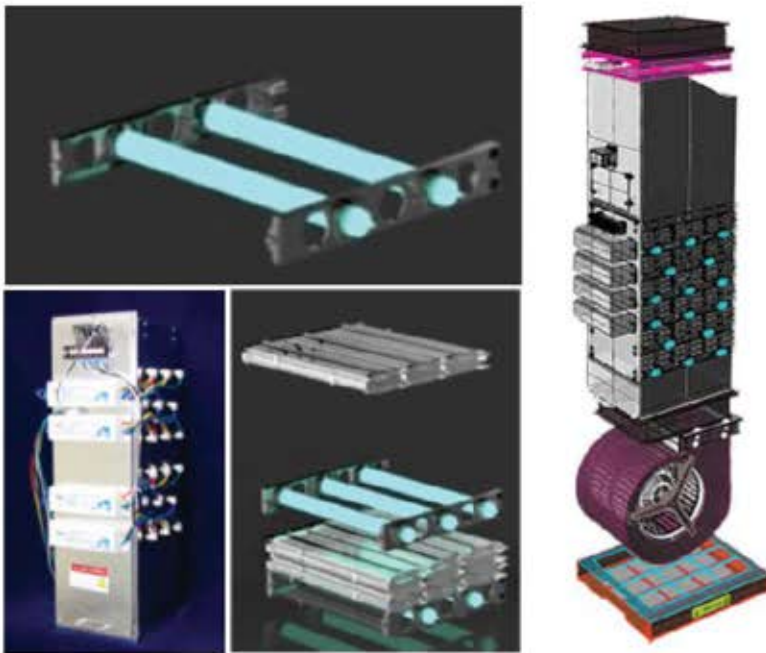
How we get such results... The technology

Optimum numbers of UVC lights are placed in the reactor chamber and they are surrounded with layers of **nano filter tubes**. The nano filter tubes are coated with photo catalytic **TiO₂** which reacts with the **UVC light** in order to create the strongest oxidant known to man - hydroxyl radicals (-OH)



• The **nano filter tubes** are filled with activated carbon in order to catch harmful gas and odour, creating time for the **-OH radicals** to decompose them. The effectiveness of the activated carbon within the

nano filter tubes is due to the Langmuir adsorption model: General activated carbon can not adsorb at a stable equilibrium but the activated carbon within the nano filter tubes interacts with the **UVC light** creating adsorbing and desorption and allowing the photo catalyst plates to decompose impurities.



Many air purifiers are just dust collectors.... This is not one of them!

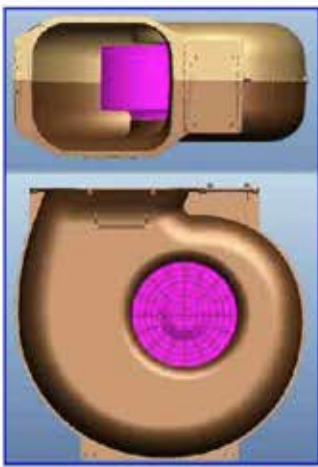
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One of the most important parts - The Fan.

Pulling the air through an air purifier in order to clean it is one of the most important functions.....

and one that far too many companies get wrong. The claimed coverage of air purifiers is directly linked to the capability of the fan and it does not matter how good the purification technology is if you are not pulling the air through it in the first place. Quality fans are costly so it is an area that many will cut corners on. No expense has been spared with the fans inside the **RADIO 8 VIRUSKILLER** units and the area we claim our units cover is the area they cover.



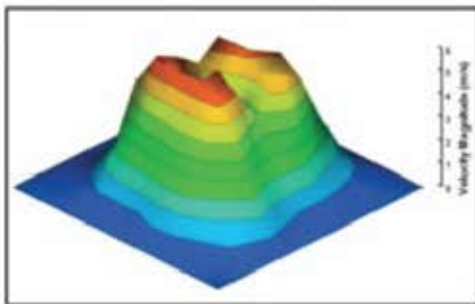
VK Medi Turbo Fan

You can have the best air purification technology but if you don't have optimum air circulation then you are limited to what you can purify. We install industry leading fans and the area we say we cover - we do cover! The turbo fan in the VK Medi range is the most powerful fan in any air purification technology in the world.

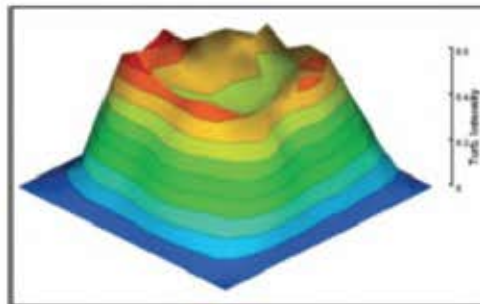


VK 002 & 102
SciroccoFan

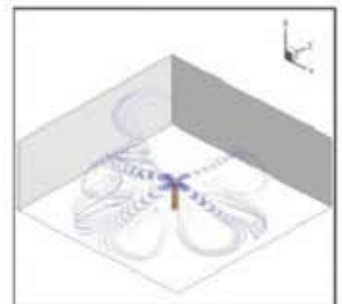
See the result of the air flow CFD (Computer Fluid Dynamics)



Output Velocity Distribution



Turbulent Intensity Distribution



Air Flow Simulation

The problem with such powerful fans is that they are noisy! **VIRUSKILLER** has integrated noise cancelling silencers so the sound level, even at full fan power, is very low.



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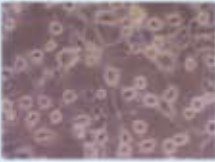








YES..... We can prove it.

See the test results from various international testing facilities and research centres. Please note - the most unique aspect of the **VIRUSKILLER technology** is its unparalleled purifying and sanitising ability across the board: Bacteria, viruses, fungus and mould / gas and VOC's / dust, allergens and particle matter. Many high end air purifiers specialise in one area.

Experiment for inactivation of major airborne viruses

Kinds of Virus		Quantity of Virus	Result of Experiment	Remarks
Polio Virus	Experiment 1	10 ⁶ PFU/100ml	None detection (99.9999%)	Test by Institute of Medical Science & Department of Microbiology (Virus Reference Laboratory Designated by Environment Research Center)
	Experiment 2	10 ⁶ PFU/100ml	None detection (99.9999%)	
	Experiment 3	10 ⁶ PFU/100ml	None detection (99.9999%)	
Influenza Virus	Experiment 1	10 ⁶ TCID ₅₀ /100ml	None detection (99.9999%)	
	Experiment 2	10 ⁶ TCID ₅₀ /100ml	None detection (99.9999%)	
	Experiment 3	10 ⁶ TCID ₅₀ /100ml	None detection (99.9999%)	
Adeno Virus	Experiment 1	10 ⁶ TCID ₅₀ /100ml	None detection (99.9999%)	
	Experiment 2	10 ⁶ TCID ₅₀ /100ml	None detection (99.9999%)	
	Experiment 3	10 ⁶ TCID ₅₀ /100ml	None detection (99.9999%)	
Corona Virus	Experiment 1	10 ⁶ PFU/50ml	None detection (99.9999%)	
	Experiment 2	10 ⁶ PFU/50ml	None detection (99.9999%)	
	Experiment 3	10 ⁶ PFU/50ml	None detection (99.9999%)	

Cell images and test results

Description	Cell line of negative	Cell line of positive	Experiment G.1	Experiment G.2	Experiment G.3
Polio Virus					
Influenza Virus					
Adeno Virus					
Corona Virus					

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YES..... We can prove it.

Removal ability of various Bacilluses and Fungus

Kind and Classification of Strain		Strain dosage	Detected amount of Strain (CFU)	Remarks
S. aureus subsp. aureus KCTC 1928	Experimental group 1	10 ⁶ /30ml	None detection (99.9999%)	University and medical research center test results
	Experimental group 2	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 3	10 ⁶ /30ml	None detection (99.9999%)	
	Positive Control Group	10 ⁶ /30ml	256	
	Negative Control Group	0/30ml	None detection (99.9999%)	
S. pyogenes KCTC 3096	Experimental group 1	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 2	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 3	10 ⁶ /30ml	None detection (99.9999%)	
	Positive Control Group	10 ⁶ /30ml	290	
	Negative Control Group	0/30ml	None detection (99.9999%)	
S. pneumoniae KCTC 2241	Experimental group 1	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 2	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 3	10 ⁶ /30ml	None detection (99.9999%)	
	Positive Control Group	10 ⁶ /30ml	312	
	Negative Control Group	0/30ml	None detection (99.9999%)	
E. coli DH 5a	Experimental group 1	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 2	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 3	10 ⁶ /30ml	None detection (99.9999%)	
	Positive Control Group	10 ⁶ /30ml	275	
	Negative Control Group	0/30ml	None detection (99.9999%)	
K. pneumoniae KCTC 2241	Experimental group 1	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 2	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 3	10 ⁶ /30ml	None detection (99.9999%)	
	Positive Control Group	10 ⁶ /30ml	391	
	Negative Control Group	0/30ml	None detection (99.9999%)	
A. niger KCTC 6089	Experimental group 1	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 2	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 3	10 ⁶ /30ml	None detection (99.9999%)	
	Positive Control Group	10 ⁶ /30ml	much	
	Negative Control Group	0/30ml	None detection (99.9999%)	
R. oryzae KCTC 6062	Experimental group 1	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 2	10 ⁶ /30ml	None detection (99.9999%)	
	Experimental group 3	10 ⁶ /30ml	None detection (99.9999%)	
	Positive Control Group	10 ⁶ /30ml	much	
	Negative Control Group	0/30ml	None detection (99.9999%)	

Removal ability of various harmful gas

Description	30 Minutes	60 Minutes	90 Minutes	120 Minutes	Remarks
Ammonia Gas	62%	71%	76%	79%	International laboratory test results
Acetaldehyde.	91%	97%	98%	100%	
Acetic acid	100%	100%	100%	100%	
Toluene	100%	100%	100%	100%	
Formaldehyde	84%	93%	95%	95%	



The results speak for themselves and that is why **VIRUSKILLER** is unparalleled air purification technology

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IN SUMMARY:

99.99% Virus Destruction

Viruskiller by **Radic8** can inactivate all kinds of viruses through the means of destroying the nucleic acid (DNA and RNA) of a virus with Ultraviolet Rays (UVC) and Hydroxyl Radicals (-OH).

Test concluded By: The Virus Testing Institute designated by the National Environmental Research Centre (Test Report No.3).

Test Results: Proved that the **Viruskiller** inactivates influenza viruses, coronavirus, poliovirus and adenovirus.

99.99% Sterilisation of not only respiratory viruses but also of fungus

With the strong sterilisation power of the reactor module **Viruskiller** by **Radic8** can sterilise not only the respiratory viruses but also can remove fungus which is normally found difficult to be disinfected.

Test Conducted By: The Testing Institute.

Test Results: Proved that the **Viruskiller** sterilises pneumonia virus, Klebsiella pneumoniae, tubercle bacillus, colon bacillus, Staphylococcus pyogenes and Aspergillus niger.

99.90% Fine dust removal capacity

The removal rate for removing fine dusts which causes pulmonary disease has shown to reach up to 99% and also its capacity for removal of fine dusts satisfies the requirements of the KS Standard (KS-C-9314) for Air Purifiers.

Test Conducted By: KOLAS, Internationally Certified Testing Institute (Test Report No. KT-359)

Test Results: Showed the fine dust removal rate of 99% with fine dust removal capacity of 33.4g. Test results vary dependant on the mechanical filters installed.

99% of Odor and toxic gas removal capacity

By using Hydroxyl Radicals (-OH) and the Deodorization Filter, it has been proved that **VIRUSKILLER** can remove foul odor and toxic gas with the removal rate achieved for SO₂: 99% and NO₂: 98%, respectively.

Tested Conducted By: International Institute of Construction Materials.

Surround air circulation and powerful air blowing capacity.

Being in a surround air circulation system, it realizes effective sterilization/purification achieved in a short time. By using a outer Rolor Type-Double Suction Blower, large amounts of air can be processed and blown.

No ozone is created within the **Viruskiller** technology.

Test Conducted By: International Aerospace University.

Test Results: As the result of a Fluid Mechanics Test, **Viruskiller** achieves a superior performance of air circulation when compared to others in its class.

*The **Viruskiller** product lines are GEN (Global Eco-labelling Network) certified as an ECO product line.*

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For more information please e-mail: support@radic8.com.au

or call: +61 2 82316500

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