Is the Muv-X worth its sticker price?

The UV-C Room Sterilizer market has a lot of poor quality, cheap products which the manufacturers often describe as 'may be effective against Covid19' or 'we expect will be effective against Covid19'.

The market is very badly regulated leaving an open opportunity for low quality and many ineffective products to become available to purchase. For professionals whose job it is to ensure that they use products which make rooms safer, relying on 'may be effective' isn't good enough. As the old saying goes, 'you get what you pay for' and when you pay little, expect little.

Most of the very cheap UVC 'Room Sterilizers' come with very little user guidance. Some manufacturers we have seen have had it tested at a laboratory...but usually tested against something like the common cold virus and because it was deemed successful in eliminating that virus (though often not clear how long it had to be run for and at what distance from the surface containing the virus), they then suggest that they believe it 'may be similarly effective' against SARS-Cov2.

Some manufacturers are leveraging the lack of knowledge amongst the public on what coronavirus means. Many people believe there is one coronavirus and it also called SARS-Cov2 or Covid19. The reality is that coronavirus a collective name that applies to hundreds of different viruses, including SARS-Cov2. If a UVC sterilizer claims to 'reduce/eliminate/kill etc the coronavirus', the buyer needs to ensure that they mean SARS-Cov2. There are many coronaviruses that are not life threatening and so its very important to know that the product has been independently tested on SARS-Cov2.

As there is often very little user guidance accompanying the Room UV Sterilizers being sold, the user cannot be certain they are using it correctly.

Equally, there is very little guidance on run times with many of the Room UVC Products we have seen. Runtime is critical to ensure the correct UVC dose to inactivate SARS-Cov2 is built up at the required distance from the UVC light. The reason in many cases for the lack of detail on runtimes is that it can take many hours in some cases if not longer to develop the required dose. Effectively, such products could be called dangerous flashlights!

Many of the cheaper products emphasize such features as motion sensors to switch off the light if someone comes too close to it and/or easy to place on a table or carry to another room in the house etc. These are certainly nice features to have but not if the fundamental object of the product to inactivate SARS-Cov2 for example is not fulfilled adequately/in a timely way. If there is no independent verification of effectiveness and no substantial user guidance to try to ensure most effective usage of the sterilizer then everything else, motion sensors, light weight etc is window dressing and deflecting attention from the reality.

The 'kill-rate' is often quoted as 99% or 99.9% etc. Without knowing runtimes and radius of operation to start with, these figures are pretty much irrelevant. The manufacturer is not misleading...he is simply not sharing the most important information and instead is allowing the customer, based on general statements he is making to decide on effectiveness themselves. No product should be sold in this way and certainly not a potential life/health saving product. Maybe its 10cms from the light after 2 hours for example. No one knows for certain.

The Room UVC market is as good an example of the reality of the phrase 'Caveat Emptor' - let the buyer beware! Buying a cheap UVC sterilizer leaves you out of pocket to the cost of the unit but all you have in return in many cases is a dangerous flashlamp. In purchasing a Room UV Sterilizer, the buyer needs in our opinion to verify 3 key points:-

- 1. Has the Sterilizer been tested by an FDA approved and/or ISO 17025 certified laboratory and proved effective? If so, effective against what virus? The manufacturer is unlikely to have independently tested the device against all virus and bacteria and so try to ensure they have tested it against the virus of most concern to you.
- 2. Does the manufacturer provide detailed guidance on room size versus run time? In order to inactivate any virus, there is a set UVC dose that needs to be created. The further from the machine, the longer it takes to build to this correct dose. Unless you have this detailed guidance, misuse/inadequate UVC exposure is almost guaranteed.
- 3. What 'kill rate' is the manufacturer claiming and a) is that what the room time v runtime calculations in 2) are based on?

If you, the buyer, are satisfied with the answers to these questions, then seek to understand

4. How easy is it to use? Are there clear operating instructions to back-up the statements which are the answers to 1),2) & 3) above?

So why should you purchase CWATs Muv-X Room UV Sterilizers?

1) We have had our Muv-X tested at an FDA approved and ISO 17025 Certified laboratory and it proved 'highly effective in completely removing SARS-Cov2 RNA', the virus which causes Covid19. The conclusion from the laboratory reads as follows:-

"In summary, 5 coupons on each of 3 sterile surfaces (stainless steel, white PVC and blue PVC) were inoculated with 100ul of SARS-CoV2 RNA (1000copies) and spread across each surface using a sterile wedge and allowed to dry for four minutes. The surfaces /coupons were then exposed to the Muv-X Room UV Sterilizer for 4 minutes.

From review of results presented in this report, it can be observed that the MUV- X room UV light sterilizers from CW Applied Technology proved highly effective in completely removing SARS-CoV2 RNA from each of the 15 inoculated coupons when exposed for 4 minutes at a distance of 2meters".

- 2) Our runtimes for the Muv-X as set out in our Technical Manual are focused specifically on SARS-Cov-2 and calculated based on a 6-Log reduction i.e., 99.9999%. Many of our competitors claim a 3 log (99.9%) or 4 log (99.99%) reduction. In the case of a surface with 1,000,000 bacteria present, and after exposing that surface to a Room UV Sterilizer for the specified run time (if they specify a run time!), of having either 1,000 bacteria remaining or 100 bacteria remaining in contrast to the 1 bacteria which would remain after a 6 log kill i.e. using our Muv-X.
- 3) CPE (the name given to a class of "superbug" bacteria, which stands for Carbapenemaseproducing Enterobacteriaceae) is a growing global issue. This infection's bacteria defeat even the most powerful antibiotics. We have had our Muv-X tested for effectiveness against CPE at an FDA approved and ISO 17025 Certified laboratory and again the results have been

outstanding and prove the effectiveness is very real. The conclusion from the laboratory report reads as follows:-

"There was a reduction of 1.8Log in CPE at 1 meter exposure and **zero survival of CPE** on white PVC, blue PVC and stainless steel.

The MUV was 100% effective against CPE. The spike inoculum was 8000cfu/ml CPE.

From review of result it can be observed that the MUV- X room UV light sterilizers from CW Applied Technology proved 100% effective in reducing CPE from PVC surfaces and stainless steel when exposed at a distance of 1 meter for 4 minutes".

- 4) We have made the product very mobile and easy for users to move from one room to the next without disassembly. This is a critical advantage in buildings/ hotels/ care homes. All the ease of movement of a lower cost product but with the proven capability associated with the higher cost products.
- 5) Like all cleaning solutions, UVC has a weakness. In the case of UVC, only air and surfaces to which the light is exposed can be sanitized. Areas in shadow are not sanitized by a Room UV Sterilizer. In order to help overcome this weakness, we have made the MUV-X very flexible and scalable. It can be configured in a number of ways:-
 - (i) It can be set on the floor like in the attached picture so that it can be shine its UVC light under desks or stretchers or beds.



(ii) It can be placed on its stand as in this picture where it can be positioned to reach high touch points.



(iii) Two Muv-X can be used together to increase speed of sanitizing and area which can be exposed, overcoming some causes of shadowing also.



(iv) 3 Muv-X can also be stacked on top of each other, increasing the area that can be exposed to UVC light and speed of disinfection.



(v) And of course, the Muv-X tower can be built without the stand if you wish.



Conclusion:

The Muv-X has been proven to be effective against SARS-Cov2 by an FDA approved and ISO 17025 Certified laboratory.

Our technical manual is strong on detail and sets out run times to achieve 99.9999% reduction in SARS-Cov2.

The growing issue of CPE has also been our focus and we have had it tested at an FDA Approved and ISO 17025 Certified laboratory for effectiveness against this superbug and it passed with very strong results.

We have listened to our customers needs in terms of useability, coupled with effectiveness, and have created a very mobile and easy to use machine.

Finally, in recognizing one the weakness of UVC in terms of shadowed areas, we have attempted to reduce the impact of this weakness by creating a very flexible and scalable machine which can be configured in several different ways.

We started off this article by saying 'you get what you pay for'. With the Muv-X, we believe this to be more true than ever.