Dhonaadhi™
Hitec Innovations

D-BOX

CORONA KILLER

UV & OZONE BASED COVID-19 SANITIZER

D-BOX

CORONA KILLER

NO MORE HAZARDOUS CHEMICAL CLEANING OF FRUITS, VEGETABLES, SMARTPHONE, LAPTOP, PENS, WALLET, TOYS, CLINICAL TOOLS, SALON TOOLS ETC. WHEN YOU HAVE LOKOZO D-BOX.

In today's continuously changing environment, effective protection from the various infectious microbes is very important and necessary in our daily lives. The intelligent D-BOX simplifies the hazardous work and ineffectiveness of regular cleaning.

D-BOX incorporates unique patented design features that reduces work shadowing by achieving 99.99% bacterial kill in a minute. Simply wash items (tools, sponges, brushes, etc.), place them in the drawer, switch on the D-BOX. The UV light turns on and its ultraviolet germicidal irradiation (UVGI) disinfect the items inside. The UV light automatically turns off when door is opened.

CLEANS & DISINFECTS

Proprietary technology cleans and provides a higher level of disinfection than any other product on the market

COST SAVING

Savings of 50% or more compared to alternative options

TIME SAVING

Same day connections

ECO FRIENDLY

Removes the need to use carcinogenic chemicals in the network

24/7 AVAILABILITY

Our team are available 24 hours a day, 7 days a week to minimise customer interruptions

FEATURES

- One-button sterilizing
- 360-degree disinfection
- 99.99% sterilization, non-toxic.
- Auto-off when the lid is open, ensuring your safety.
- Enclosure material: MS or SS.
- Optional with OZONE Disinfection.
- Built OZONE generator CAPACITY into the chamber with 0.1 ppm concentration in 2min exposer.
- Adapter power supply, fast disinfecting.
- Professional-grade UV disinfection, high efficiency.
- With Inbuilt timer 2 Minutes
- With Automatic Door Sensor
- Lamp Type – UVC LED
- Uniform distribution of UVC light is achieved at intensity 5mW/cm2 to 25mW/cm2.
- The best wavelength level to disinfect, destroy the DNA structure of bacteria.
- Ultraviolet rays and OZONE directly destroy the DNA of bacteria and destroy all bacteria.
- UVC LED Driver Inbuilt
- Wavelength: 250nm to 280nm
- UVC LED life 40000 hours continuous operation
- Optional built-in OZONE generator with air blower
- Power ON Indicator Illuminated Switch
- Operation Modes Indicated by LED
- IP CLASS: IP20
- Operating Voltage: 230 / 110VAC 50/60Hz
- Warranty: 2 Years

D-BOX

CORONA KILLER

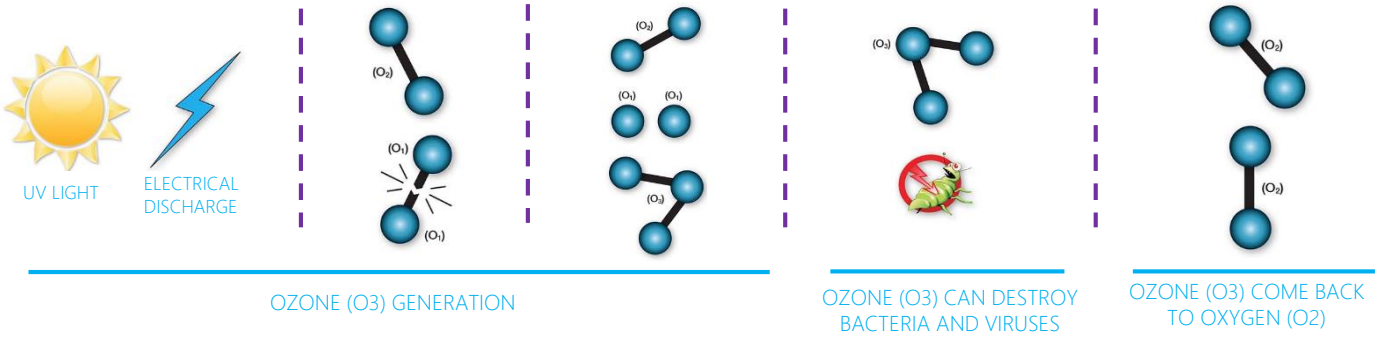
COVID-19 DISINFECTION WITH UV

- D-BOX is a UV Sterilizer with a radiation chamber which emits Ultraviolet Germicidal Irradiation (UVGI) for disinfecting and preventing the growth of bacteria and viruses on the surface of the objects and tools.
- UVGI are emitted from UV LED Light with ozone formation and has a long service life (average of 40000 hours). It uses narrow band UVC light which is highly efficient in targeting the DNA-disruption of pathogens and killing them.
- The D-BOX is equipped with an alarm and a handle to open the door of the radiation chamber.
- This device can be widely used at Homes, Hospitals, Pharmacy, Chemical Factory, Food Industry, Catering Services etc.
- It is also suitable for portable salon tools and other metal tools and instruments.

UV STERILIZATION PARAMETERS:

- Lamp Type – UVC LED
- UVC LED Driver Inbuilt
- Wavelength: 250nm to 280nm
- UVC LED life 50000 hours continuous operation
- Operation Modes Indicated by LED
- Uniform distribution of UVC light is achieved at intensity 5mW/cm2 to 25mW/cm2.

What is OZONE?



OZONE IS A VERY POWERFULL DISINFECTION DESTROYING 99.99% OF BACTERIA, VIRUSES, FUNGI, SPORES,POTOZOA, YEAST, CYSTS, ALGAE….

WHAT IS OZONE DISINFECTION?

One common method of disinfection is ozonation (also known as ozone disinfection). Ozone is an unstable gas that can destroy bacteria and viruses. It is formed when oxygen molecules (O2) collide with oxygen atoms to produce ozone (O3).

Ozone is generated by an electrical discharge through dry air or pure oxygen and is generated onsite because it decomposes to elemental oxygen in a short amount of time. After generation, ozone is fed into a down-flow contact chamber containing the wastewater to be disinfected. From the bottom of the contact chamber, ozone is diffused into fine bubbles that mix with the downward flowing wastewater. Ozone disinfection is generally used at medium- to large-sized plants after at least secondary treatment.

Ozone is extremely effective at removing odors through molecular oxidation. Lesser known is its efficacy as a disinfectant, for which it has been used effectively in the medical field for many years. A powerful gas capable of high levels of disinfection, ozone can be very effective at killing pathogenic bacteria and fungi, as well as for inactivating viruses. The focus of this article is the use of ozone as a virucide, with emphasis on the SARS-CoV-2, which, according to the International Committee on Taxonomy, is the accurate name for what is commonly referred to as the COVID-19 coronavirus, and is how it will be referenced in this article.

Dr. Gérard Sunnen is a medical doctor in New York City, specializing in the uses of ozone in the medical field, ranging from cutting-edge ozone therapy to the use of ozone as a disinfectant. According to Dr. Sunnen. “Ozone has unique disinfectant properties. As a gas, it has a penetration capacity that liquids do not possess. In view of the fact that , SARS-CoV-2, MERS, and previous SARS strains persist on fomites (surfaces) for up to several days, it is suggested that ozone technology be applied to the decontamination of medical and other environments”.

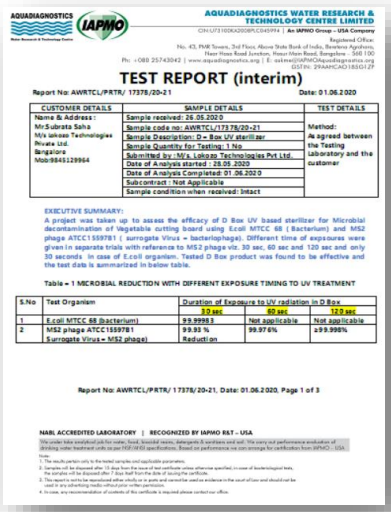
“Typically, viruses are small, independent particles, built of crystals and macromolecules. Unlike bacteria, they multiply only within the host cell. Ozone destroys viruses by diffusing through the protein coat into the nucleic acid core, resulting in damage of the viral RNA. At higher concentrations, ozone destroys the capsid or exterior protein shell by oxidation” explains Dr. Sunnen. Further, “most research efforts on ozone's virucidal effects have centered upon ozone's propensity to break apart lipid molecules at sites of multiple bond configuration. Indeed, once the lipid envelope of the virus is fragmented, its DNA or RNA core cannot survive”.

D-BOX

Every technique has its specific advantages and its own application area. In the table below some of the advantages and disadvantages are shown. Attributes for each technology are ranked from 1 (weak) to 5 (strong):

TECHNOLOGY	OZONE	UV	CHLORINE DIOXIDE	CHLORINE GAS	PERACETIC ACID	HYPOCHLORITE
Environmentally friendly	5	5	3	1	2	1
By-products	5	5	2	1	2	1
Efficiency	5	3	3	2	2	2
Investment	2	3	4	4	4	4
Operational costs	5	4	3	4	4	4
Fluids	5	4	5	3	3	3
Surfaces	5	5	1	1	1	1
Residual disinfection	3	1	5	5	4	5
Handling	5	4	3	3	2	2
Score	40	34	29	24	24	23

D-BOX TEST REPORT


AQUADIAGNOSTICS WATER RESEARCH & TECHNOLOGY CENTRE LIMITED

TEST REPORT (interim)

Report No: AWRTCL/PRTR/ 17378/20-21 Date: 01.06.2020

CUSTOMER DETAILS	SAMPLE DETAILS	TEST DETAILS
Name & Address : Mr.Subrata Saha, M/s Lokozo Technologies Private Ltd. Bangalore Mob:9845129964	Sample received: 26.05.2020 Sample code no: AWRTCL/17378/20-21 Sample Description: D + Box UV sterilizer Sample Quantity for Testing: 1 No Submitted by : M/s Lokozo Technologies Pvt Ltd. Date of Analysis started : 28.05.2020 Date of Analysis Completed: 01.06.2020 Subcontract : Not Applicable Sample condition when received: Intact	Method: As agreed between the Testing Laboratory and the customer

EXECUTIVE SUMMARY:
A project was taken up to assess the efficacy of D Box UV based sterilizer for Microbial decontamination of Vegetable cutting board using E.coli MTCC 68 (Bacterium) and MS2 phage ATCC 15597B1 (surrogate Virus + bacteriophage). Different time of exposures were given in separate trials with references to MS2 phage viz. 30 sec, 60 sec and 120 sec and only 30 seconds in case of E.coli organism. Tested D Box product was found to be effective and the test data is summarized in below table.

Table - 1 MICROBIAL REDUCTION WITH DIFFERENT EXPOSURE TIMING TO UV TREATMENT

S.No	Test Organism	Duration of Exposure to UV radiation in D Box		
		30 sec	60 sec	120 sec
1	E.coli MTCC 68 (Bacterium)	99.9998 %	Not applicable	Not applicable
2	MS2 phage ATCC 15597B1 Surrogate Virus + MS2 phage)	99.93 % Reduction	99.97 6%	≥99.996%

Report No: AWRTCL/PRTR/ 17378/20-21, Date: 01.06.2020, Page 1 of 3

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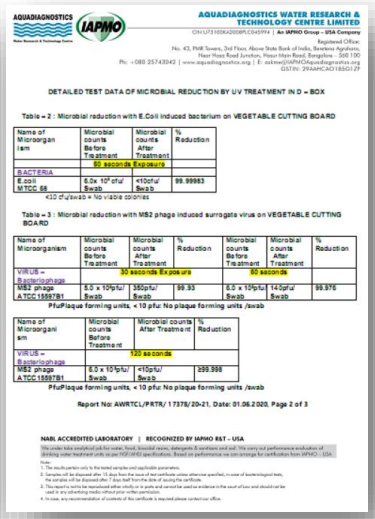
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DETAILED TEST DATA OF MICROBIAL REDUCTION BY UV TREATMENT IN D – BOX

Table – 2 : Microbial reduction with E.Coli induced bacterium on VEGETABLE CUTTING BOARD

Name of Microorganism	Microbial counts Before Treatment	Microbial counts After Treatment	% Reduction
		60 seconds Exposure	
BACTERIA E.coli MTCC 68	6.0x 10⁶ cfu/ Swab	<10cfu/ Swab	99.99983

<10 cfu/swab = No viable colonies

Table – 3 : Microbial reduction with MS2 phage induced surrogate virus on VEGETABLE CUTTING BOARD

Name of Microorganism	Microbial counts Before Treatment	Microbial counts After Treatment	% Reduction	Microbial counts Before Treatment	Microbial counts After Treatment	% Reduction
VIRUS – Bacteriophage		30 seconds Exposure			60 seconds	
MS2 phage ATCC 15597B1	5.0 x 10⁶pfu/ Swab	350pfu/ Swab	99.93	5.0 x 10⁶pfu/ Swab	143pfu/ Swab	99.976

Pfu/Plaque forming units, < 10 pfu: No plaque forming units /swab

Name of Microorganism	Microbial counts Before Treatment	Microbial counts After Treatment	% Reduction
VIRUS – Bacteriophage		120 seconds	
MS2 phage ATCC 15597B1	5.0 x 10⁶pfu/ Swab	<10pfu/ Swab	≥99.998

Pfu/Plaque forming units, < 10 pfu: No plaque forming units /swab

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METHODOLOGY:
Two portions of vegetable cutting board was smeared with 1 ml 24 hr old broth culture of a known microbial species. The contents were allowed to acclimatize and air dry for 10 minutes. One of the smear was swabbed for 10 cm x 10 cm area and transferred to 10 ml of 0.9 % physiological saline. Serial dilutions were made and 1 ml inoculum was plated out on selective agars. Incubation was done at 37 °C / 24-48 hr. Colonies were enumerated. This is BEFORE TREATMENT

The second smear was exposed to 30 seconds of UV exposure inside D – Box UV sterilizer in separate trial 60 seconds exposure and 120 seconds were also used with reference to MS2 phage culture (surrogate virus – bacteriophage). In case of E Coli (bacterium) only 60 seconds UV exposure was used as per manufacturer's instruction.

The treated portion of 10 cm x 10 cm areas, in different trials, were swabbed and contents were transferred to 10 ml of 0.9% physiological saline. Serial dilutions were made and 1 ml inoculum was plated out on selective agars. Incubation was done at 37 °C / 24-48 hr. Colonies were enumerated. This is AFTER TREATMENT

% Reduction was calculated by taking microbial counts Before Treatment as reference.

PICTURE OF THE TEST PRODUCT D – BOX

Dr S.MURALIDHARA RAO
Head – Laboratory

Report No: AWRTCL/PRTR/ 17378/20-21, Date: 01.06.2020, Page 3 of 3

00--------End of the Test Report --------00

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DEPARTMENT of MATERIALS ENGINEERING
Indian Institute of Science
BANGALORE

PRAVEEN C. RAMAMURTHY
Professor

27th May 2020

To whom it may concern:

I have tested the LOKOZO UV box system that was brought to our laboratory at Indian Institute of Science. According to the literature, the minimum irradiance required to treat coronavirus is about 611 Micro Joules/cm² for 274 nm. Based on our calculation from your setup we are getting >753 Micro Joules/cm² at a distance of about 40 cm. Hence, make sure to keep the target distance in the range of 40 to 60 cm.

Spectra of the LOKOZO UV box

Praveen Feel free to contact me if you require further information.

With best regards

Praveen C Ramamurthy

D-BOX

FEATURES	POWER RATING	CAPACITY (Liters)	Enclosure Material	INTERNAL SIZE Wcm x Dcm x Hcm	EXTERNAL SIZE Wcm x Dcm x Hcm	WEIGHT	SANITIZING STAGE
UV-DBOX-5-M	5W	5 L	MS	35x24x97	35x25x18	2Kg	UVC
UV-DBOX-10-M	8W	10 L	MS	35x24x14	35x25x22	2.9Kg	UVC
UV-DBOX-15-M	10W	15 L	MS	35x24x19	35x25x27	3.5Kg	UVC
UV-DBOX-20-M	12W	20 L	MS	35x24x23	35x25x32	5.5Kg	UVC
UV-DBOX-40-M	24W	40 L	MS	45x29x31	45x30x40	8.1Kg	UVC
UV-DBOX-80-M	45W	80 L	MS	45x29x45	45x30x45	12.2Kg	UVC
UV-DBOX-100-M	50W	100 L	MS	40x40x56	45x40x56	12.5Kg	UVC
UV-DBOX-150-M	80W	150 L	MS	50x50x54	50x55x62	16.0Kg	UVC
UV-DBOX-200-M	100W	200 L	MS	50x50x74	50x55x83	18.1Kg	UVC
UVO3-DBOX-20-M	12W	20 L	MS	35x24x23	35x25x32	5.5Kg	UVC+ OZONE
UVO3-DBOX-40-M	24W	40 L	MS	45x29x31	45x30x40	8.1Kg	UVC+ OZONE
UVO3-DBOX-80-M	45W	80 L	MS	45x29x45	45x30x45	12.2Kg	UVC+ OZONE
UVO3-DBOX-100-M	65W	100 L	MS	40x40x56	45x40x56	15.2Kg	UVC+ OZONE
UVO3-DBOX-150-M	100W	150 L	MS	50x50x54	50x55x62	18.2Kg	UVC+ OZONE
UVO3-DBOX-200-M	150W	200 L	MS	50x50x74	50x55x83	20.2Kg	UVC+ OZONE
UV-DBOX-5-S	5W	5 L	SS 304	35x24x97	35x25x18	3.2Kg	UVC
UV-DBOX-10-S	8W	10 L	SS 304	35x24x14	35x25x22	4.9Kg	UVC
UV-DBOX-15-S	10W	15 L	SS 304	35x24x19	35x25x27	5.8Kg	UVC
UV-DBOX-20-S	12W	20 L	SS 304	35x24x23	35x25x32	7.5Kg	UVC
UV-DBOX-40-S	24W	40 L	SS 304	45x29x31	45x30x40	11.2Kg	UVC
UV-DBOX-80-S	45W	80 L	SS 304	45x29x45	45x30x45	14.8Kg	UVC
UV-DBOX-100-S	50W	100 L	SS 304	40x40x56	45x40x56	15.9Kg	UVC
UV-DBOX-150-S	80W	150 L	SS 304	50x50x54	50x55x62	18.7Kg	UVC
UV-DBOX-200-S	100W	200 L	SS 304	50x50x74	50x55x83	20.5Kg	UVC
UVO3-DBOX-20-S	12W	20 L	SS 304	35x24x23	35x25x32	3.9Kg	UVC+ OZONE
UVO3-DBOX-40-S	24W	40 L	SS 304	45x29x31	45x30x40	5.7Kg	UVC+ OZONE
UVO3-DBOX-45-S	24W	45 L	SS 304	45x29x31	45x30x40	6.8Kg	UVC+ OZONE
UVO3-DBOX-80-S	45W	80 L	SS 304	45x29x45	45x30x45	8.5Kg	UVC+ OZONE
UVO3-DBOX-100-S	65W	100 L	SS 304	40x40x56	45x40x56	12.1Kg	UVC+ OZONE
UVO3-DBOX-150-S	100W	150 L	SS 304	50x50x54	50x55x62	15.7Kg	UVC+ OZONE
UVO3-DBOX-200-S	150W	200 L	SS 304	50x50x74	50x55x83	16.8Kg	UVC+ OZONE

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