

PASS-THROUGH BOX FOR EQUIPMENT DISINFECTION

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THE UV222 TECHNOLOGY

UV-C irradiation is an established method of disinfection that can be used to prevent the spread of infectious diseases [1-3]. The UV-C spectrum ranges from 200 to 280 nm. Traditional disinfectant lamps emit primarily at 254 nm, which is harmful for human skin and eyes. On the contrary, it has been demonstrated that a range of the UV-C spectrum with shorter wavelengths (200 to 230 nm), called Far UV-C, exhibits strong antimicrobial properties, without harming human cells [4].

UV Medico develops Far UV-C solutions at 222 nm to continuously disinfect occupied spaces.

THE PASS-THROUGH BOX



DIMENSIONS

Outside dimensions:

Height: 60 cm

Width: 40 cm

Depth: 40 cm

Inside dimensions:

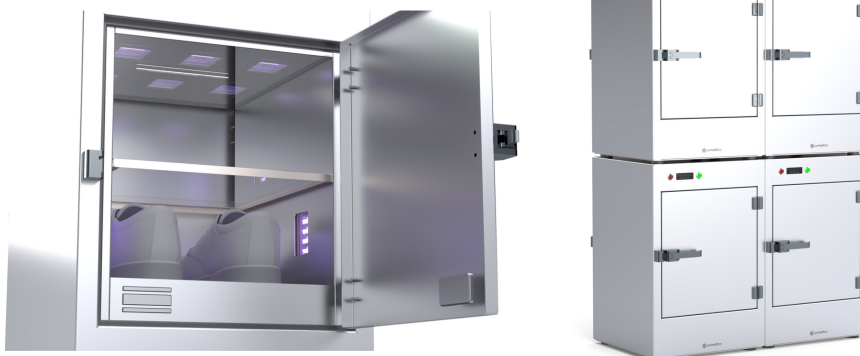
Height: 30.9 cm

Width: 30.4 cm

Depth: 39.7 cm

FEATURES

- Light wavelength 222 nm
- Start and stop button on one side
- Two doors
- Countdown display on both sides
- Magnetic locks on doors
- Sensor ensuring that UV light can only be turned on when doors are locked
- Cabinets can be stacked
- Cabinet in stainless steel
- Two rooms with shelf in between (UV light transmits through the shelf material)



PURPOSE OF THE STUDY

To test the disinfection efficacy of UV222 lamps on the vamp and outsole of cleanroom shoes. Before disinfection, the shoes comply with grade CNC or D. After disinfection, the shoes should comply with grade C.

EXPERIMENTAL SETUP

Living bacteria of the species staphylococcus epidermis were smeared onto the outsole of the shoe to demonstrate a severe case of contamination. These bacteria are part of the normal human flora and can often be found on surfaces touched by humans. The shoe was placed 40 cm from a UV222 60° lamp, delivering 76.74 $\mu\text{W}/\text{cm}^2$ at the shoe surface. The final dose was 23 mJ/cm^2 , and bacterial reduction was measured using a Swab-Sampler (3M) together with Petrifilm Aerobic Count Plates (3M). Tests were performed in triplicate.

RESULTS

UV222 illumination resulted in a 94% bacterial reduction on the outsole and a 99% reduction on the upper side of the shoe.

CONCLUSION

In conclusion, these tests show that UV222 efficiently disinfects cleanroom shoes both on the outsole and upper side of the shoe with a germ reduction between 94-99%.

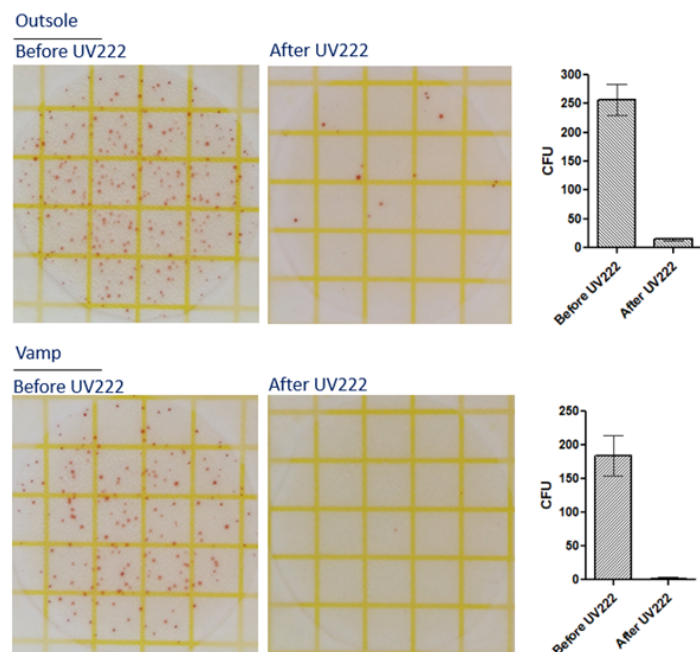


Figure 1. Bacterial reduction using UV222

REFERENCES

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