



The Sidèrea BKL system

FARO S.p.A. has developed an innovative disinfection system called Sidèrea BKL which not only inactivates SARS-CoV-2 and the environmental bacterial load, but is also effective against microorganisms coming from the water mains and the oral cavity microorganisms: *Escherichia coli* and *Staphylococcus aureus*. Laboratory tests of these experiments were conducted by the University of Siena.

Sidèrea BKL uses near UV-A LED light, a blue-range visible light (close to ultraviolet), at a wavelength of approximately 405 nm. Its ability to reduce the bacterial load by more than 99% and inactivate the SARS-CoV-2 virus by 99.5% was evaluated.

The results obtained from the experiment are reported in the tables below (Tables 1-3).

Table 1

CYCLE TIME	Effective against <i>Escherichia coli</i>
180 min*	90%
240 min*	95%
300 min*	99%

*tested at 135 cm from the lamp

Table 2

CYCLE TIME	Effective against SARS-CoV-2*
90 min**	97%
180 min**	99.5%

*tested with a reduced size system at double power

**equivalent minutes reported to the actual system

Table 3

CYCLE TIME	Effective against <i>Staphylococcus aureus</i>
60 min*	93%
120 min*	97%
180 min*	99%

*tested at 135 cm from the lamp

The disinfecting effect is due to the emission of light from the near UV-A LEDs, which can reduce bacterial and fungal proliferation and inactivate viruses (such as SARS-CoV-2), triggering oxidation processes that alter the building blocks of the microorganisms. No secondary oxidation components, such as ozone, are created by the near-UVA light sources used on Sidèrea BKL. When used in compliance with the photobiological risk regulations, the system is not harmful to the health of the operators. Scientific evidence shows that near UV-A light, compared to UV-C light, also causes less



UNIVERSITÀ
DI SIENA
1240

Dipartimento di Medicina Molecolare e dello Sviluppo

deterioration of the surrounding surfaces comparable to the sunlight's one. Laboratory tests have confirmed Sidèrea BKL lamp's ability to reduce the bacterial component by over 99%.

Therefore, by adhering to both the above mentioned conditions and the general recommendations in the user manual, Sidèrea BKL is effective and can be safely used in any area of dentistry and orthodontics.

In faith:

Prof. Gabriele Messina

Associate Professor of General and Applied Hygiene
Department of Molecular and Developmental Medicine
University of Siena

Prof. Gabriele Cevenini

Full Professor of Bioengineering
Dept. of Medical Biotechnology
University of Siena

Siena, 26 January 2022

Contact Link for Gabriele Messina: <https://docenti.unisi.it/en/messina-0>

Contact Link for Gabriele Cevenini: <https://docenti.unisi.it/en/cevenini>

The translation has been done by external staff. Please refer to the Italian or English translation in case of inaccuracies.