

## MediPlas – RONS generator

for disinfection

# MediPlas<sup>®</sup>

## RONS generator as a component for industrial and medical applications

The MediPlas system consists of two components: the MediPlas Reactor and the MediPlas Driver. The reactor is the core component, which generates reactive oxygen and nitrogen species (RONS) using dielectric barrier discharge (DBD). The composition and concentrations of RONS in the resulting gas mixture depend on the type of gas supplied (e.g. composition, humidity, temperature), the electrical power supplied by the driver and the temperature in the reaction chamber.



Control these parameters:



To get a tailored output gas composition of:

1

Input Gas  
e.g. O<sub>2</sub> or air

2

Humidity

3

Temperature  
(in the reactor)

4

Electric  
Power



Nitrogen Oxides (NO<sub>x</sub>)  
Nitric oxide acids (HNO<sub>3</sub>)

and / or

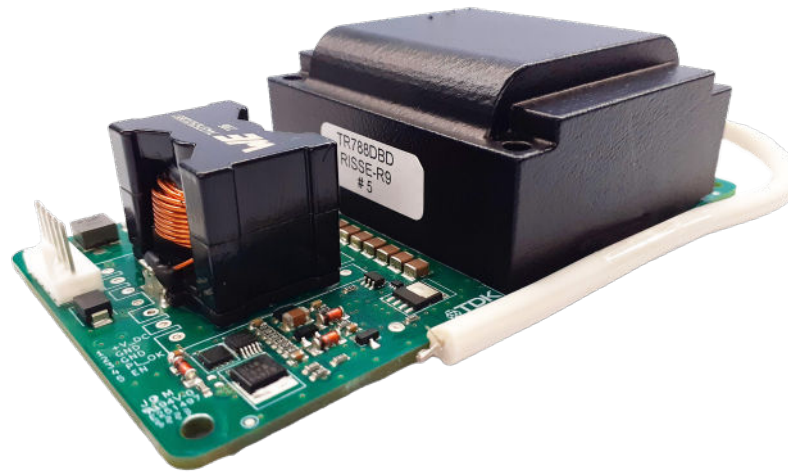
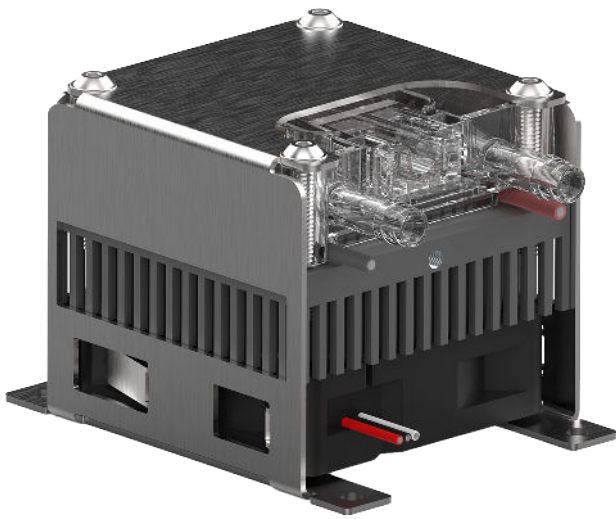
Ozone (O<sub>3</sub>)  
up to 50,000 ppm\*

and / or

Hydrogen Peroxide (H<sub>2</sub>O<sub>2</sub>)

### Fields of application

- ◇ MediPlas enables cost-effective decontamination solutions with fast cycles and minimal toxic effects
- ◇ Based on cold atmospheric plasma (CAP), it can be integrated as a cleaning, sterilization and disinfection component in applications
- ◇ Treatment of food against unwanted microorganisms
- ◇ Treatment of seeds for improved germination
- ◇ Production of plasma-activated water (PAW)
- ◇ Decontamination of packaging, especially in the food and medical sectors



# Medi Plas®

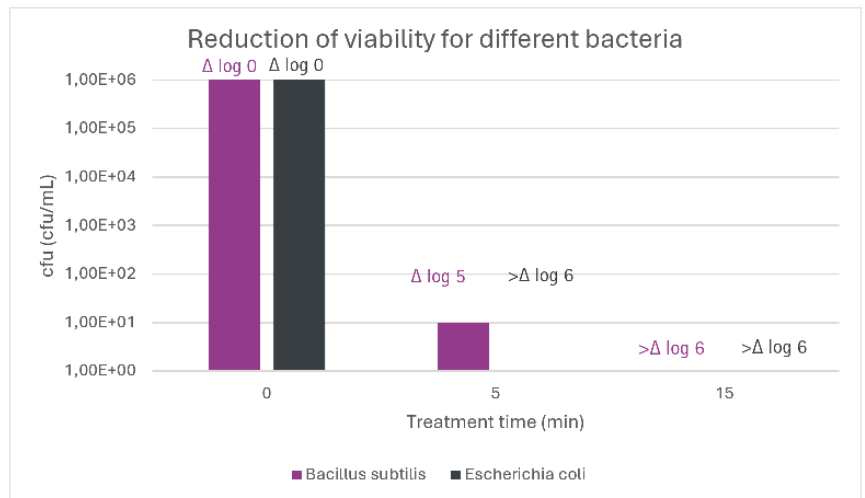
MediPlas achieves the reduction over 6 log levels

## Reduction over 6 log levels

To evaluate the effectiveness of the MediPlas RONS generator, a variety of tests were carried out. At the beginning of the experiment, a suspension of microorganisms is added to a reaction vessel filled with water. The RONS produced by the MediPlas system are introduced into the vessel via a sintered stone and flow through the contaminated water. At certain time intervals, samples are taken to analyze the colony-forming units (CFU).

The series of experiments shows that in the case of gram-positive *Bacillus subtilis* bacteria, a reduction of 5 log levels in the number of living cells was achieved after a treatment period of 5 minutes with RONS. With a treatment period of 15 minutes, a reduction of more than 6 log levels was even achieved.

When treating the gram-negative bacterium *Escherichia coli*, a reduction of more than 6 log levels could be achieved after just 5 minutes of treatment.



## Technical details

| Parameter           | MediPlas Reactor           | MediPlas Driver      |
|---------------------|----------------------------|----------------------|
| Typical input power | 30 W                       | 30 W                 |
| Width/height/depth  | 78 mm/63 mm/78 mm          | 68 mm/39 mm/114 mm   |
| Weight              | 230 g                      | 460 g                |
| Reference signal    | -                          | analog from 0 to 5 V |
| Max. concentration  | 4.000 ppm O <sub>3</sub> * | -                    |
| Max. ozone quantity | 1 g/h*                     | -                    |

\* by using dry air as process gas



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