

CERTIFIED according to ISO 22196 (mod.)

CERTIFICATE

on the antimicrobial properties of

DYPHOX® Universal-Coating

of the company

TriOptoTec GmbH

Am Biopark 13

93053 Regensburg, Germany

has been successfully tested versus

Staphylococcus aureus DSM 799

as **antimicrobial**

≥ **99.99% germ reduction**

according to ISO 22196 (modified)

In contrast to the standard method with the test bacteria on a covered and therefore permanently moist surface, the test was carried out dry at room temperature and under the influence of visible light.

The antibacterial effect is clearly related to the photocatalytic effect of the coating tested.

For details, see Test Report No. 3595 Rev1 / 200327-10295-22196-01

The bearer of this certificate is entitled to affix the following seal to parts or surfaces made from the tested material



Nuremberg, Germany, July 21st 2020

Managing Director

Laboratory Director

CERTIFIED according to ISO 22196 (mod.)

CERTIFICATE

on the antimicrobial properties of

DYPHOX® Universal-Coating

of the company

TriOptoTec GmbH
Am Biopark 13
93053 Regensburg, Germany

has been successfully tested versus

Enterococcus faecium EDCC 5271 (VRE)

as antimicrobial

≥ 99.99% germ reduction

according to ISO 22196 (modified)

In contrast to the standard method with the test bacteria on a covered and therefore permanently moist surface, the test was carried out dry at room temperature and under the influence of visible light.

The antibacterial effect is clearly related to the photocatalytic effect of the coating tested.

For details, see Test Report No. 3607.1 Rev1 / 200417-10295-22196-01

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Nuremberg, Germany, July 21st 2020

Managing Director

Laboratory Director

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CERTIFICATE

on the antimicrobial properties of

DYPHOX® Universal-Coating

of the company

TriOptoTec GmbH

Am Biopark 13

93053 Regensburg, Germany

has been successfully tested versus

Acinetobacter baumannii DSM 30008 / ATCC 15308

as **antimicrobial**

≥ **99.99% germ reduction**

according to ISO 22196 (modified)

In contrast to the standard method with the test bacteria on a covered and therefore permanently moist surface, the test was carried out dry at room temperature and under the influence of visible light.

The antibacterial effect is clearly related to the photocatalytic effect of the coating tested.

For details, see Test Report No. 3607.2 Rev1 / 200417-10295-22196-02

The bearer of this certificate is entitled to affix the following seal to parts or surfaces made from the tested material



Nuremberg, Germany, July 21st 2020



Managing Director



Laboratory Director

**Testing of the virucidal activity of the
DYPHOX[®] Universal-Beschichtung
against Influenza A Virus (H1N1)**

Test of the light inducible photo-biocide in the quantitative carrier test following the RKI-Richtlinie (1995) against *Influenza A Virus (H1N1; strain: New Caledonia)*

- Excerpt from the test report S1 dated 19.04.2020 -

by

PD Dr. Olaf Thraenhart and Dr. Christian Jursch

Study time: in April 2020
Principal: dyphox[®] Hygiene Solutions
TriOptoTec GmbH
Am Biopark 13
D-93053 Regensburg, Germany

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Geschäftsführer: Dr. Christian Jursch
Hauptgesellschafter: PD Dr. Olaf Thraenhart

Amtsgericht Potsdam
Handelsregister-Nr.: HRB 26128 P
Steuer-Nr.: 050/108/05610
USt-IdNr.: DE 288 863 508

Mittelbrandenburgische
Sparkasse in Potsdam
SWIFT/BIC: WELA DE D1 PMB
IBAN: DE14 1605 0000 1000 9939 37

Aim of the testing and performing the test

The product **DYPHOX[®] Universal-Beschichtung** should be tested for its ability to inactivate the *Influenza A Virus* under the influence of light.

To test this feature, stainless steel test squares (carrier) were coated with the **DYPHOX[®] Universal-Beschichtung**. Afterwards the test virus material, containing the *Influenza A Virus H1N1 (New Caledonia)* were evenly distributed on the surface of the coated test specimen and exposed to the irradiation with visible light. After irradiation the virus material was then recovered from the test carriers and the remaining amount of virus was quantified.

The underlying test was carried out in the dry state based on the RKI-guideline (1995) and ISO 21702 (modified) at room temperature and under the influence of visible light.

Test results

The testing of the **DYPHOX[®] Universal-Beschichtung** under the described test conditions and with the *Influenza A Virus H1N1 (New Caledonia)* as the test virus has shown that:

1. with the **DYPHOX[®] Universal-Beschichtung** and after irradiation with visible light a significant reduction of the test virus was recorded. The virus reduction on the test surface amounted to more than 3,8 Log, corresponding to a virus inactivation of 99,98%.
2. without irradiation with light, the test samples had no virus-inactivating activity.

Judgement

On the basis of the data obtained it can therefore be concluded that the described antiviral effect on the *Influenza A Virus* can clearly be attributed to the photo catalytic effect of the coating under test.

Luckenwalde, 21st of April 2020



Dr. Ch. Jursch
(GF and Laboratory Manager Eurovir)