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Laboratory identification number	LI-B-023-004
Study Report	**Testing the accelerating aging of Dr. Schutz Vir-O-Bac Sealer by performance of photodynamic technology against *Acinetobacter baumannii***
Test	The validation of the anti-bacterial activity on a PVC carrier coated with **Dr. Schutz Vir-O-Bac Sealer** using the photodynamic technology. Quantitative determination of the recovered bacterial inoculum according to the following measures: 1. U_t: Reference control, untreated test specimen (- dye / - light / + bacteria) 2. Light control (- dye / + light / + bacteria) 3. Dark control (+ dye / - light / + bacteria) 4. At: treated test specimen (+ dye / + light / + bacteria) 5. $U_{0:}$ Recovery control
Sponsor	Dr. Schutz GmbH Steinbrinksweg 30 D-31840 Hessisch Oldendorf
Test method	Quantitative test on non-porous surfaces
Active substance	Singlet oxygen generated in situ from ambient air
Interfering substance	Not applicable

Storage conditions	20.0 °C und 50.0 °C, dry	
Storage time	240 days	
Carrier material	PVC	
Strain	***Acinetobacter baumannii:*** ATCC 19606; DSM 30007.	
Contact time	60 min	
Project description	• Bacterial contamination of carriers (4 cm^2) coated with **Dr. Schutz Vir-O-Bac Sealer** coating • Microbial reduction via light emitting LEDs in combination with **PVC** coated carrier	
Reference documents	Modification of the following test methods: • EN 13697:2019-10 • ISO 22196:2011 • ASTM F 1980-02	
	• **SOP-ST-MIK.M.0047** • **SOP-ST-MIK.M.0038**	
Reference material	Test specimen without light exposure + bacteria - dye	
Written	PD Dr. rer. nat. Maren Eggers	
Test facility	Labor Prof. Dr. G. Enders MVZ GbR Abteilung Technische und angewendete Hygiene Rosenbergstraße 85 70193 Stuttgart	
Dates	Begin of testing:	2023-06-26
	End of testing:	2023-06-28
Technical assistance	Lucija Štauduar Ena Obucic Neira Herenda	

3.2. Test results

The data of the bacterial efficacy of light emitting LEDs in combination with **Dr. Schutz Vir-O-Bac Sealer** coated **PVC** carrier is presented in Table 3.

The photodynamic inactivation of *Acinetobacter baumannii* on PVC carriers dropped 1 lg after 47 days and then remained unchanged up to **240 days storage time at 20.0 ºC**. The energy-rich singlet oxygen generated in the test procedure resulted in a reduction of **1.16 $\log_{10}$ (93.08%)** within 60 minutes exposure time.

The photodynamic inactivation of *Acinetobacter baumannii* on PVC carriers (**240 days storage time at 50.0 ºC**) by the energy-rich singlet oxygen generated in the test procedure resulted in a reduction of **1.19 $\log_{10}$ (93.54%)** within 60 minutes exposure time.

The shelf life time of **Dr. Schutz Vir-O-Bac Sealer** is 5 years.

07.09.2023

Date

PD Dr. rer. nat. Maren Eggers
Head of disinfectant testing and applied / technical hygiene

Test product	Storage temp. / time (ºC / days)		Corresponds to storage of	Calculation	R	Kill rate (%)
Dr. Schutz Vir-O-Bac Sealer	20.0	0	-	R= (Ut – U0) – (At – U0) = Ut–At =	2.36	99.57
Dr. Schutz Vir-O-Bac Sealer	20.0	47	-	R= (Ut – U0) – (At – U0) = Ut–At =	**0.98**	**89.61**
Dr. Schutz Vir-O-Bac Sealer	50.0	47	1 year	R= (Ut – U0) – (At – U0) = Ut–At =	**0.84**	**85.66**
Dr. Schutz Vir-O-Bac Sealer	20.0	96	-	R= (Ut – U0) – (At – U0) = Ut–At =	**1.10**	**92.12**
Dr. Schutz Vir-O-Bac Sealer	50.0	96	2 years	R= (Ut – U0) – (At – U0) = Ut–At =	**1.07**	**91.49**
Dr. Schutz Vir-O-Bac Sealer	20.0	144	-	R= (Ut – U0) – (At – U0) = Ut–At =	**1.26**	**94.50**
Dr. Schutz Vir-O-Bac Sealer	50.0	144	3 years	R= (Ut – U0) – (At – U0) = Ut–At =	**1.07**	**91.55**
Dr. Schutz Vir-O-Bac Sealer	20.0	192	-	R= (Ut – U0) – (At – U0) = Ut–At =	**1.09**	**91.93**
Dr. Schutz Vir-O-Bac Sealer	50.0	192	4 years	R= (Ut – U0) – (At – U0) = Ut–At =	**1.09**	**91.81**
Dr. Schutz Vir-O-Bac Sealer	20.0	240	-	R= (Ut – U0) – (At – U0) = Ut–At =	**1.16**	**93.08**
Dr. Schutz Vir-O-Bac Sealer	50.0	240	5 years	R= (Ut – U0) – (At – U0) = Ut–At =	**1.19**	**93.54**