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TO WHOM IT MAY CONCERN,

This is to certify that due to license agreements our product "**Liquid Guard**" is sold under the brand name "**AIRDAL®**" in various countries and business sectors by our Partner AIRDAL GmbH. Both products are exactly the same product with the same formula.

Yours sincerely,

Oliver Sonntag

Nano-Care Deutschland AG
Alfred-Nobel-Straße 10
66793 Saarwellingen
Germany

Ref No: BVDU/IRSHA/ 826/2020-21 **Date:** 12/12/2020

TEST REPORT ID: NB/AV/20/0009
Amendment: 01

Study Title: Liquid Guard

Testing laboratory Name:	National Immunogenicity and Biologics Evaluation Centre (NIBEC), IRSHA, BVDU
IRSHA Study Number	SCoAV-15
Customer Name and Address	Nano-care, Nanocare Deutchland Alfred-Nobel-Straβe 10 66793, Saarwellingen, Germany
Nano-care project number	1
Date of Sample Receipt	31st October 2020
Start date of Testing	12th November 2020
End date of Testing	18th November 2020
Date of Reporting	2nd December 2020
Specimen Used for testing	1.Liquid Guard (SiO_2 technology) 2.Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) (Leneta plates coated with Liquid Guard (SiO_2 technology) or Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) and respective control Leneta plates)
Testing Condition	Antiviral testing at 24 hours contact time

Dr. RashmiVirkar
Authorized Signatory

Dr. Sudha Ramkumar
Authorized Signatory

The test results in this report refer only to the batch of items supplied by the customer for testing. The results provided may be submitted to regulatory authorities as scientific proof. The results must not be used for claims that are unsubstantiated by regulatory authorities. All reports are archived at NIBEC, IRSHA for a maximum period of years. The sample will be retained for 3 months after submission of Final Report unless otherwise requested in writing.

Scope

The standard describes the method for measuring antiviral activity on plastics and other non-porous surfaces of antiviral-treated products against specified viruses.

Outline of Test Method

A test suspension of the SARS-CoV-2 virus was inoculated onto Liquid Guard (SiO_2 technology), Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) and its respective control surface followed by covering with a cover film. The surfaces loaded with virus inoculum were maintained at specified temperature (25 ° C ± 1 ° C) for a contact period of **24** hours maintaining required humidity. At the end of the contact time remaining infectious virus particles were recovered individually from Liquid Guard (SiO_2 technology), Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) coated and control surfaces by washing the surfaces with medium. Quantification of recovered surviving organisms (infectious virus particles) was done by plaque assay. As prescribed in guideline assay was performed in triplicate using 3 test specimen for each step.

Test Virus Summary

Realm	Riboviria
Order	Nidovirales
Family	Coronaviridae
Genus	Betacoronavirus
Species	COVID-19
NCBI Accession number for virus isolate	MT416726

Test Information Summary

Guideline referred	ISO 21702 (Measurement of antiviral activity on plastics and other non-porous surfaces)
Details of the specimen	Leneta plates of size 50 mm X 22 mm (treated and untreated) of thickness 2 mm.
Specimen storage condition	Ambient
Type of polymer used for the cover film	Glass cover slip of size 50 mm X 22 mm X 0.1 mm
Virus used for testing	COVID 19 (SARS-CoV-2)
Host Cell line used for testing	Vero cell line
Volume of test inoculum used	200 µl (6×10^4 PFU/ml)
Test Concentrations	As supplied
Test Temperature	25 ° C ± 1 ° C
Temperature of incubation in plaque assay	37 ° C
Contact time	24 hours
Stability and appearance of the metal specimen during the test	No change observed
Neutralizer used	Ice cold 2 % Minimal Essential media

Test Result Summary

1. Liquid Guard (SiO_2 technology) has exhibited **0.77 PFU/ cm^2** log reduction (resistance to growth) against COVID 19 virus after 24 hours of contact time.
2. Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) has exhibited **0.15 PFU/cm^2** log reduction (resistance to growth) against COVID 19 virus after 24 hours of contact time.

Data Summary

Liquid Guard (SiO_2 technology)	Number of plaques recovered						Average number of plaques recovered	Infectivity titer of virus recovered per cm^2 of test specimen (*N*)*	Average of the common logarithm of the number of plaques recovered		Antiviral activity per cm^2 (*R*)**
	Specimen 1		Specimen 2		Specimen 3						
Untreated	8	10	15	10	15	19	12.8	11.7	U_t	1.07	0.77
Treated	4	3	1	1	2	2	2.2	2.0	A_t	0.29	
Control	27	33	29	31	25	22	27.8	253.0	U_0	2.40	

Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology)	Number of plaques recovered						Average number of plaques recovered	Infectivity titer of virus recovered per cm^2 of test specimen (*N*)*	Average of the common logarithm of the number of plaques recovered		Antiviral activity per cm^2 (*R*)**
	Specimen 1		Specimen 2		Specimen 3						
Untreated	13	11	9	13	10	13	11.5	10.5	U_t	1.02	0.15
Treated	10	11	5	7	3	13	8.2	7.4	A_t	0.87	
Control	27	33	28	31	25	21	27.5	250.0	U_0	2.40	

***Infectivity titer of virus recovered per cm^2**

$$N = (10 \times C \times D \times V) / A$$

N is the infectivity titer of virus recovered per cm^2 of test specimen
C is the average number of plaque counted for the duplicate wells
D is the dilution factor for the wells counted
V is the volume of the neutralizer media added to the specimen, in ml
A is the surface area of the cover film, in cm^2

****Antiviral activity (PFU/cm²)**

$$R = (U_t - U_0) - (A_t - U_0) = U_t - A_t$$

R is the antiviral activity;

U_0 is the average of the common logarithm of the number of plaques recovered from the three untreated test specimens immediately after inoculation, in PFU/cm²;

U_t is the average of the common logarithm of the number of plaques recovered from the three untreated test specimens after 24 h, in PFU/cm²

A_t is the average of the common logarithm of the number of plaques recovered from the three treated test specimens after 24 h, in PFU/cm².

The value of the antiviral activity (R) can be used to characterize the effectiveness of an antiviral agent.

Representative Test Images:

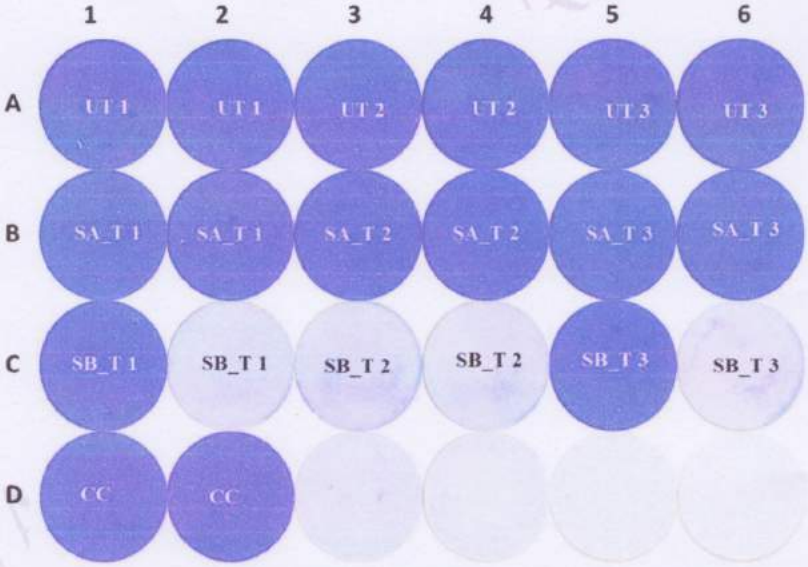

Plate 1: Cytotoxicity assessment of Liquid Guard (SiO_2 technology) and B (Reaction mass of TiO_2 and Silver Chloride technology) treated and untreated control specimen

- This image specifies that the Liquid Guard (SiO_2 technology) treated and the control specimen are non-toxic on vero cell line as cell monolayer is observed intact. Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) is partially cytotoxic on vero cell line as the cell monolayer is not intact in C2, C3, C4 and C6

UT: Untreated control specimen; **SA-T:** Liquid Guard (SiO_2 technology) coated test specimen; **SB-T:** Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) coated test specimen; **CC:** Cell control.

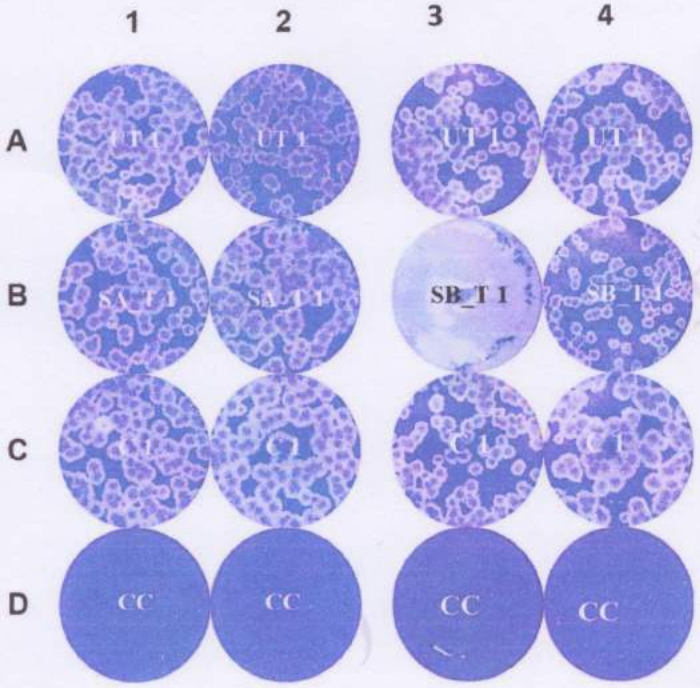

Plate 2: Verification of cell sensitivity to virus and the inactivation of antiviral activity

- The purpose of the control test is to confirm the suppressive efficiency of wash media on the test specimen
- This image indicates, the wash media is not cytotoxic and has no effect on the cell sensitivity to the SARS-CoV2 virus infection and virus inactivation as represented by plaques in UT1, SA_T1, SB_T1 and control C1 (no specimen) wells.

UT: Untreated specimen washed with medium and spiked with the SARS-CoV-2 virus; **SA-T:** Liquid Guard (SiO_2 technology) coated test specimen washed with medium and spiked with the SARS-CoV-2 virus; **SB-T:** Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) coated test specimen washed with medium and spiked with the SARS-CoV-2 virus, **C:** Verification of cell sensitivity control (control: medium+ virus without treated or untreated specimen); **CC:** Cell control.

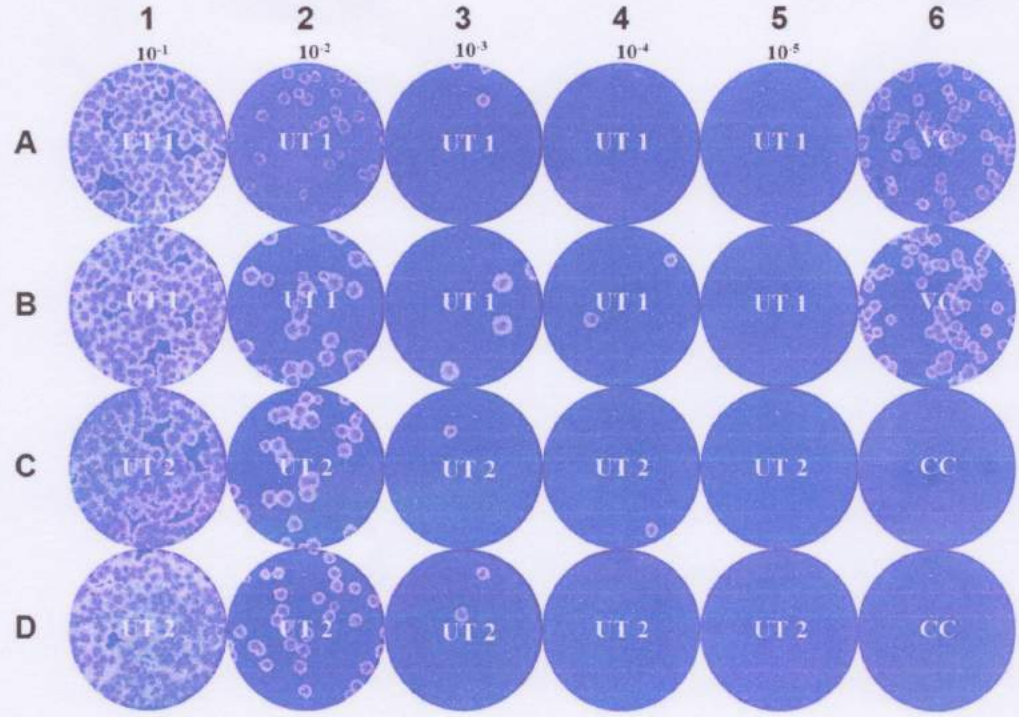

Plate 3: Titration of SARS-CoV2 virus on untreated control specimens after immediate wash with the wash media. (U_0 is calculated from plate 3 data)

UT: Untreated specimen; **CC:** Cell control; **VC:** Virus control.

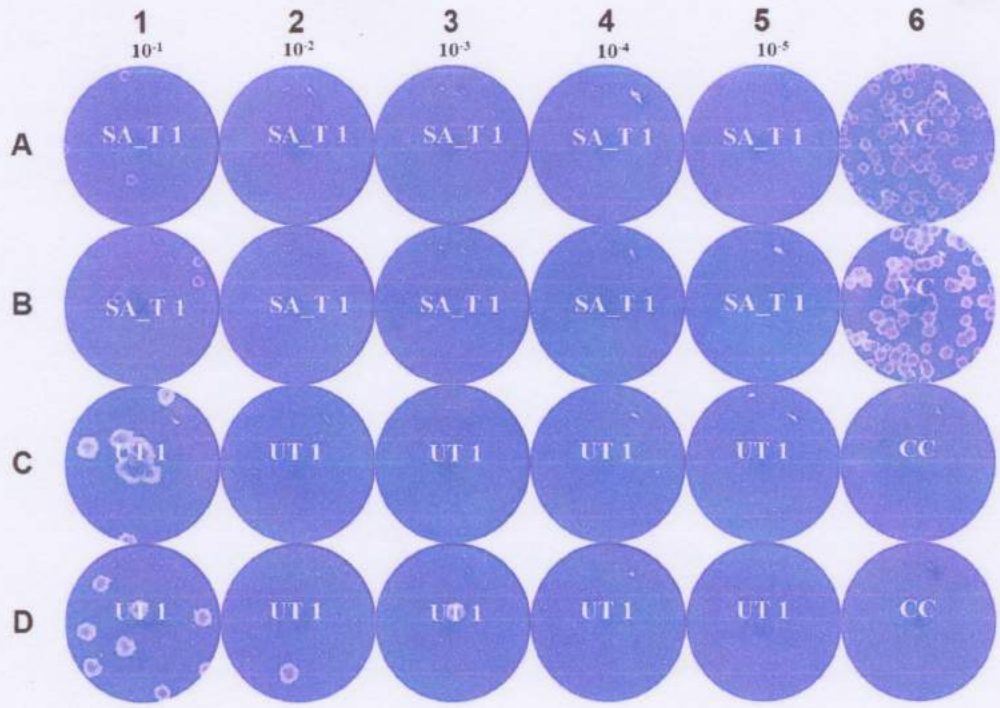

Plate 4: Antiviral assessment of Liquid Guard (SiO_2 technology) treated and control specimen after 24 hours contact time.

- The image specifies that, in comparison to UT1 specimen, the SA_T1 shows reduction in the plaque count.
- The image indicates that Liquid Guard (SiO_2 technology) coated sample exhibited virucidal activity against SARS-CoV2 virus. In comparison to untreated control, the retained number of live infectious SARS-CoV-2 virus particles quantified in form of plaques were less in Liquid Guard (SiO_2 technology) coated test specimen than that of respective untreated control specimen after contact time of 24 hours.

UT: Untreated specimen; **SA-T:** Liquid Guard (SiO_2 technology) coated test specimen; **CC:** Cell control; **VC:** Virus control.

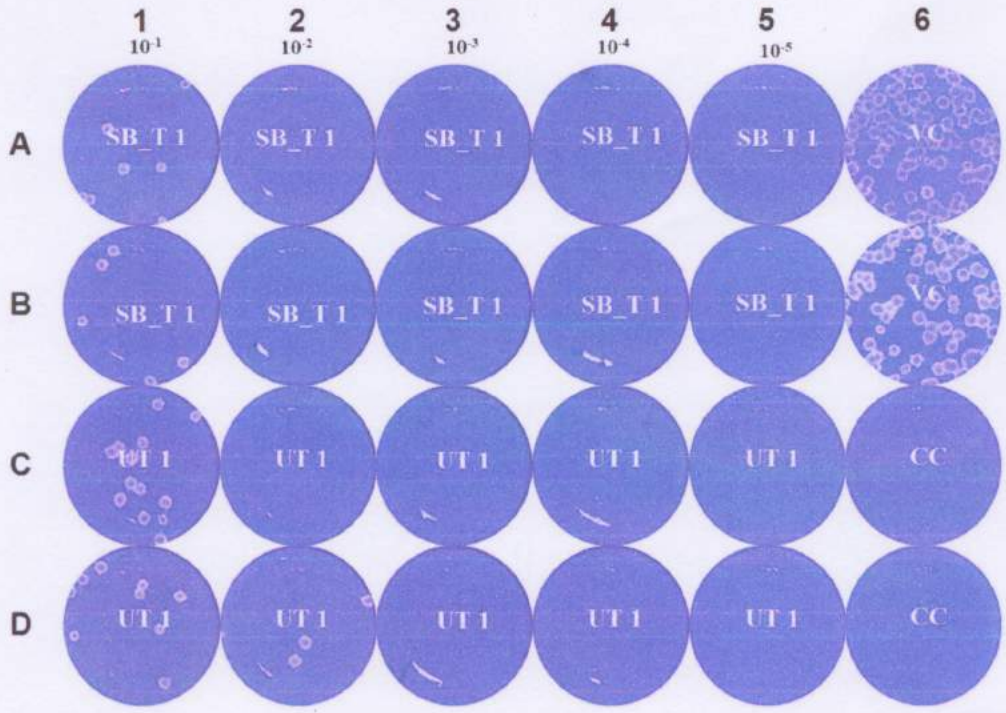

Plate 5: Antiviral assessment of Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) treated and control specimen after 24 hours contact time.

- The image specifies that, in comparison to UT1 specimen, the SB_T1 shows reduction in the plaque count.
- The image indicates that Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) coated test specimen exhibited virucidal activity against SARS-CoV2 virus. In comparison to untreated control, the retained number of live infectious SARS-CoV-2 virus particles quantified in form of plaques were less in Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) coated test specimen than that of respective untreated control specimen after contact time of 24 hours.

UT: Untreated specimen; **SB-T:** Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) coated test specimen; **CC:** Cell control; **VC:** Virus control.

Comment incorporated as requested by the client to provide the results in antilog: (log transformation of antiviral activity/cm^2)

1. The test products Liquid Guard (SiO_2 technology) has exhibited 0.77 PFU/ cm^2 log reduction which corresponds to 5.88 PFU/ cm^{2}reduction (resistance to growth) against COVID 19 virus after 24 hours of contact time.
2. The test products Liquid Guard B (Reaction mass of TiO_2 and Silver Chloride technology) has exhibited 0.15 PFU/ cm^2 log reduction which corresponds to 1.41 PFU/ cm^{2}reduction (resistance to growth) against COVID 19 virus after 24 hours of contact time.

----------**End of Report**----------