



ISO 21702:2019

T.C. SAĞLIK BAKANLIĞI
HALK SAĞLIĞI GENEL MÜDÜRLÜĞÜ
Çevre Sağlığı Dairesi Başkanlığı
Yetkili Laboratuvar

Measurement of antiviral activity on plastics and other non-porous surfaces

Test Results Report by



ANTİMİKROP AR-GE ve BİYOSİDAL ANALİZ MERKEZİ Nasuh
Akar Mah. Süleyman Hacıabdullahoğlu Cad. No: 37/1
Çankaya/Ankara

This report cannot be partially copied and reproduced without the written permission of the laboratory, and cannot be used outside the relevant institutions.

Unsigned reports are invalid.

This report is only valid for the sample whose information is above (delivered to our laboratory). Our laboratory does not perform the sampling process, and our laboratory is not responsible for errors caused by sampling or problems that may occur due to the sample not representing the whole.

This report cannot be used for advertising purposes.

*(*This experiment is not within the scope of accreditation.*

Customer : ARTEKYA TEKNOLOJİ LTD. ŞTİ.

Contact : Orhan ALAL

Web : orhan@artekya.com

Address : Tübitak Gebze Yerleşkesi Teknoloji Serbest Bölgesi Yeni Teknoloji
Binaları D Blok Zemin Kat Gebze/KOCAELİ

Report Date: 21.06.2021

Prof. Dr. Murat ERTÜRK
Responsible manager

ANTİMİKROP ANTİMİKROBİYAR MAD. VE
AR-GE MÜH. VE DAN. HİZ. KİMYA SAN. TİC. LTD. ŞTİ.
Nasuh Akar Mah. Süleyman Hacıabdullahoğlu Cad. No: 37/1
Çankaya / ANKARA
Hizmet V.D.No:070 031 8715 Mersis No:0070031871500013

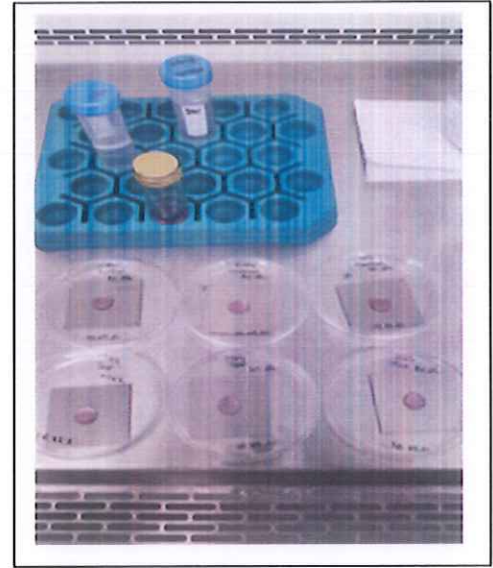
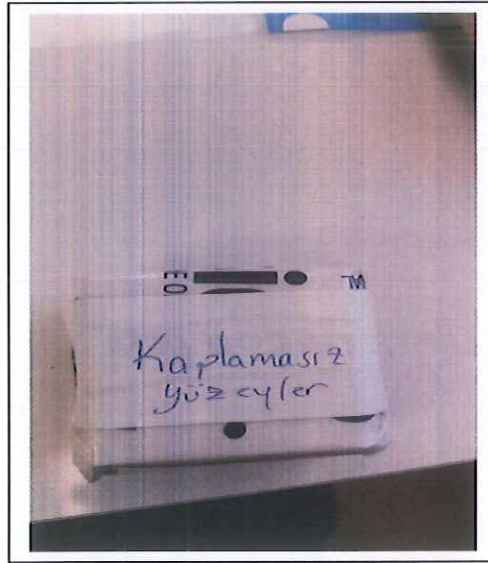
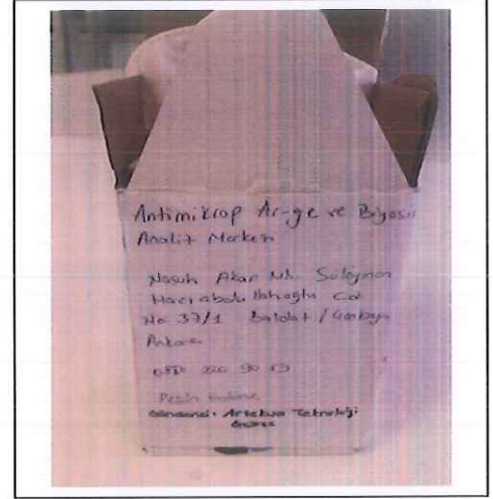
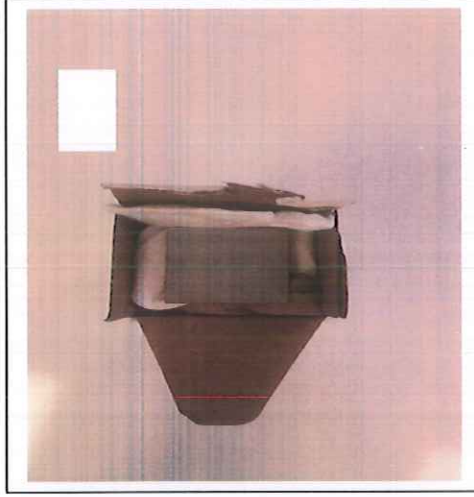
Bio. Ceren ÖZKAN
Responsible for quality

N021164

0

1. TEST INFORMATION

Product Sample:




ANTİMİKROP ANTİMİKROBİYAL MAD. LAB.
AR-GE MÜH. VE DAN. HİZ. KİMYA SAN. TİC. LTD. ŞTİ.
Mesih Akar Mah. Süleyman Hacıabdullahoğlu Cad. No.37/1
Çankaya / ANKARA
Tic. Sic. No: 070 031 8715 Mersis No: 0070031871500013

Producer	: ARTEKYA TEKNOLOJİ LTD. ŞTİ.
Product(s)	: METAL PLAKA (Nasiol Anti-VRL)
Storage Conditions	: Room Temperature
Sample Code	: COV-21-0164
Sample Acceptance Date	: 05.05.2021
Period of Analysis	: 10.05.2021-14.05.2021
Name of the Test	: Antiviral activity test of the product of ARTEKYA TEKNOLOJİ LTD. ŞTİ., METAL PLAKA (Nasiol Anti-VRL)
Test Method	: ISO 21702:2019- Measurement of antiviral activity on plastics and other non-porous surfaces
Control Test Sample	: Uncovered plate
Virus	: SARS-CoV-2 (COVID-19) Clinical isolate (GenBank:MT955161.1)
Contact Time	: 60 minutes
Test Temperature	: 24°C ±1°C
Virus-Cell Incubation Temperature	: 37°C ±1°C, 5 % CO ₂

2.TEST METHOD

SARS-CoV-2 (COVID-19) (Clinical isolate; GenBank No: MT955161.1) virus stock culture was prepared using Vero E6 cell line cultured in DMEM-10 (Dulbecco's Minimum Essential Medium containing 10% FBS (fetal bovine serum), penicillin / streptomycin / fungisone). Metal plates coated with Nasiol Anti-VRL by ARTEKYA TEKNOLOJİ LTD. ŞTİ. product were tested after 30 days.

In each experiment, 9 of the test items 'METAL PLAKA (Nasiol Anti-VRL)' with dimensions of 50 mm x 50 mm were used, while 12 of the Reference control test items of the same size were used. 3 of 'METAL PLAKA (Nasiol Anti-VRL)' items and 3 of control items were used for cytotoxicity and neutralization tests, and 3 control items were used for initial (t0) virus titers. The samples were inoculated with 0.4 ml of stock virus and kept during exposure. At the end of the test time, log dilutions of harvest obtained by washing the samples with 10 ml DMEM-10 were transferred to 96-well plates containing cells and incubated at 37°C ± 1°C, 5% CO₂ conditions. After 4 days of incubation, cytopathic effect was evaluated under inverted microscope and the virus TCID₅₀ titer recovered was calculated according to the Spearman-Kärber formula. Virucidal (virus killing) activity was calculated in terms of Log and % activity by comparing the average TCID₅₀ value of control items with the mean TCID₅₀ value of test items.

3.TEST RESULTS SUMMARY:

'METAL PLAKA (Nasiol Anti-VRL)' sample inoculated with SARS-CoV-2 (COVID-19) (Clinical isolate; GenBank Acc. No: MT955161.1) has shown 89,03% VIRUCIDAL effect within 60 minutes compared to control sample.

ANTİMİKROBİYAL MİKROBİYAL MAD. LAB.
PURE MÜHÜRLEME VE DANIŞMANLIK SAN. TİC.LTD.ŞTİ.
Nispetiye / Şişli / Beşiktaş / İstanbul / Türkiye
Süleyman Hacıabdullahoğlu Cad. No 37/1
Çankaya / ANKARA
T.C. M.D. No 070 031 8715 Mersis No 2070031871500011

NO 21164

**3.1. METAL PLAKA (Nasiol Anti-VRL) - SARS-CoV-2 (COVID-19) Clinical isolate
(GenBank:MT955161.1)**

TEST	Test Material	(Log TCID ₅₀)		Comments/Results	
		Results	Mean		
Virus titration	Stock virus	7.67	-	OK	
Cytotoxicity	Control Surface 1	0,5	0.5	OK	
	Control Surface 2	0,5			
	Control Surface 3	0,5			
	Test Surface 1	0,5	0,5	OK	
	Test Surface 2	0,5			
	Test Surface 3	0,5			
Neutralization Control (interference)	Control Surface 1	5,63	5,46	OK	
	Control Surface 2	5,25			
	Control Surface 3	5,50			
	Negative sample 1	5,75	5,58	OK	
	Negative sample 2	5,50			
	Negative sample 3	5,50			
	Test Surface 1	6,13	5,80	OK	
	Test Surface 2	5,50			
	Test Surface 3	5,75			
t0 Hours Virus Infectivity Dose	Control Surface 1	5,88	5,83	OK	
	Control Surface 2	5,75			
	Control Surface 3	5,88			
Virucidal test (t60 Minutes)	Control Surface 1	5,88	5,79	R= Kt60-Kt0	R=0,96 (89,03%)
	Control Surface 2	5,75		R=-0,04	
	Control Surface 3	5,75			
	Test Surface 1	4,63	4,83	R= Tt60-Kt0	
	Test Surface 2	5,00		R=-1	
	Test Surface 3	4,88			

ANTİMİKROB ANTİBİYOTİKLERİ VE İLAHLAR LABORATUVARI
 AR-GE MÜH. VE DANIŞMANLIK HİZMETLERİ SAN. TİC.LTD.ŞTİ.
 Necati Akar Mah. Süleyman Hacıabdullahoğlu Cad. No 37/1
 Çankaya / ANKARA
 T.C. V.D.No:070 031 8715 Mersis No 007003187150001*

№ 2 1 1 6 4

4. Raw Data

4.1. METAL PLAKA (Nasiol Anti-VRL)- SARS-CoV-2 (COVID-19) Clinical isolate (GenBank:MT955161.1)

TEST	Material	Log dilution- cpe evaluation						
		-1	-2	-3	-4	-5	-6	-7
Virus Titration	Stock Virus	444444	444444	444444	444444	404444	000300	010000
t0 Enfectivitiy dose	Control 1	44444444	44444444	44444444	44444444	04040030	-	-
	Control 2	44444444	44444444	44444444	44444444	00044000	-	-
	Control 3	44444444	44444444	44444444	44444444	40400400	-	-
Cytotoxicity	Control 1	00000000	00000000	00000000	-	-	-	-
	Control 2	00000000	00000000	00000000	-	-	-	-
	Control 3	00000000	00000000	00000000	-	-	-	-
	Test 1	00000000	00000000	00000000	-	-	-	-
	Test 2	00000000	00000000	00000000	-	-	-	-
	Test 3	00000000	00000000	00000000	-	-	-	-
Neutralization (interference)	Control 1	44444444	44444444	44444444	40440044	00340044	-	-
	Control 2	44444444	44444444	44444444	40044044	00004000	-	-
	Control 3	44444444	44444444	44444444	04404444	04000400	-	-
	Test 1	44444444	44444444	44444444	44444444	00404444	-	-
	Test 2	44444444	44444444	44444444	40444404	40000400	-	-
	Test 3	44444444	44444444	44444444	44444444	00040004	-	-
	Negative Interference 1	44444444	44444444	44444444	44444404	00400044	-	-
	Negative Interference 2	44444444	44444444	44444444	40404444	00300040	-	-
	Negative Interference 3	44444444	44444444	44444444	44004444	04004000	-	-
T60 Minutes	Control 1	44444444	44444444	44444444	34444444	04404000	-	-
	Control 2	44444444	44444444	44444444	44424444	00000320	-	-
	Control 3	44444444	44444444	44444444	44444444	00000404	-	-
	Test 1	44444444	44444444	44444444	00004000	-	-	-
	Test 2	44444444	44444444	44444444	00440404	-	-	-
	Test 3	44444444	44444444	44444444	04000404	-	-	-


 ANTIMİKROP ANTİMİKROBYAL MAD. LAB.
 T.C. MÜH. VE DANIŞMANLIK KİMYA SAN. TİC. LTD. ŞTİ.
 Sıhhiye Mh. Süleyman Hacırahmanoğlu Cad. No 37/1
 Çankaya / ANKARA
 T.C. MTD No 070 031 8715 Mersis No:007003187150001

5. KEEPING WORK RECORDS

5.1. Keeping Records: All original raw data obtained specifically for this study will be archived. This original data includes, but is not limited to, the following information: Notebooks, data sheets and calculations, all handwritten raw data and certified copy of the final work report.

5.2. Keeping Test Material: Remaining test items will be stored as witness sample for 3 months at room temperature.

THIS REPORT CONSISTS OF 6 PAGES, INCLUDING THE FRONT PAGE.


ANTİMİKROP ANTİMİKROBİYAL MAD. LAB.
AR-GE MÜH. VE DAN. HİZ. KİMYA SAN. TİC. LTD. ŞTİ.
Fazıl Aker Mah. Süleyman Hacıabdullahoğlu Cad. No.37/1
Çankaya / ANKARA
Tic. Sic. No: 070 031 8715 Mersis No: 0070031871500013