



ISO 21702:2019

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

(Non-accredited test procedure)



### Test Results Report

This report was prepared by ANTİMİKROP AR-GE ve BİYOSİDAL ANALİZ MERKEZİ  
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for

TÜRKİYE ŞİŞE VE CAM FABRİKALARI A.Ş.

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**Report Date:** 12.10.2020

**Report No:** R-20-0223/1

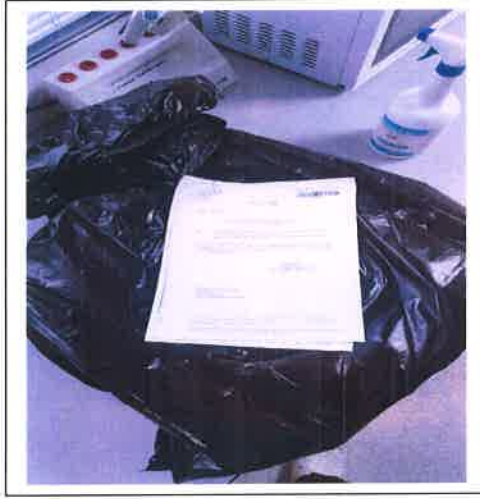
Prof. Dr. Murat ERTÜRK  
Responsible manager

Kim. Nihan SEVEN EROĞLU  
Responsible for quality

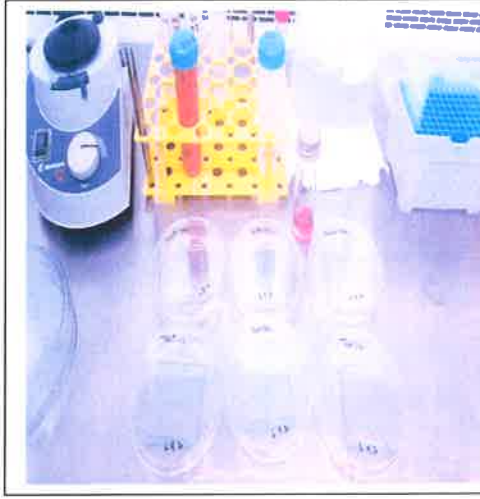
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LABORATUVAR AKADEMİK MODELERİ  
MÜHÜRÜSÜZ VE DENİMLİLİK  
HİZMETLERİ KİMYA SANAYİ TİCARET LTD.ŞTİ  
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## 1. TEST INFORMATION

Test Product:



ANTİMİKROP ANTIMİKROBİYAL MADDELERİ  
LABORATUVAR ARAŞTIRMA GELİŞTİRME  
MÜHENDİSLİK VE DANIŞMANLIK  
HİZMETLERİ KİMYA SANAYİCİLİK LTD ŞTİ  
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Mersis No: 007031871500013



<b>Producer</b>	: TÜRKİYE ŞİŞE VE CAM FABRİKALARI A.Ş.
<b>Product(s)</b>	: V-Block (Antimicrobial Coated sample)
<b>Storage Conditions</b>	: Room temperature
<b>Sample Code</b>	: Bİ-20-0223
<b>Sample Acceptance Date</b>	: 16.09.2020
<b>Analysis Dates</b>	: 06.09.2020-05.10.2020
<b>Test Name</b>	: Antiviral efficacy test for V-Block (Antimicrobial Coated sample), the product of TÜRKİYE ŞİŞE VE CAM FABRİKALARI A.Ş.
<b>Test Method</b>	: ISO 21702:2019- Measurement of antiviral activity on plastics and other non-porous surfaces
<b>Control Test Sample</b>	: Control; Glass without antimicrobial application and cover
<b>Virus (es)</b>	: SARS-CoV-2 (Covid-19) Clinical isolate (GenBank: MT955161.1)
<b>Contact Time</b>	: 1 Hour
<b>Test Temperature</b>	: 24°C ±1°C
<b>Virus-Cell Incubation °C</b>	: 37°C ±1°C, 5 % CO <sub>2</sub>

ANTİMİKROP ANTIMİKROBİYAL MADDELERİ  
LABORATUVAR ARAŞTIRMA GELİŞTİRME  
MUHENDİSLİK VE TİCARET LİMİTED ŞİRKETİ  
HİZMETLERİ KİMYA SANAYİ TİCARET LTD.ŞTİ  
Nasuh Akar Mah. Süleymanîye Bulvarı, Çarşıbaşı, Çarşıbaşı, Çarşıbaşı  
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## 2. TEST METHOD

COVID-19 (SARS-CoV-2) (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).

In each experiment, 9 of *V-Block* (Antimicrobial Coated sample) Test samples of 50 mm x 50 mm dimensions were used, while 12 of the Reference uncoated control samples of the same size were used. From *V-Block* test and reference control samples, 3 were used for cytotoxicity and neutralization tests, and 3 were used for initial (t0) virus titers. The others were inoculated with 0.4 ml of stock virus and left for the exposure time. At the end of the period, harvest was obtained by washing each glass with 10 ml of DMEM-10. Next, log dilutions of harvest obtained from the samples were transferred to 96-well plates containing cells and incubated at  $37^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , 5%  $\text{CO}_2$  conditions. After 4 days of incubation, cytopathic effect was evaluated under inverted microscope and the virus TCID<sub>50</sub> 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 TCID<sub>50</sub> value of control samples with the mean TCID<sub>50</sub> value of test samples.

## 3. SUMMARY TEST RESULT:

Compared to the control, *V-Block* (Antimicrobial Coated sample) glass treated with Sars-Cov-2 (Covid-19) showed an 94,1% VIRUCIDAL effect against Sars-Cov-2 within 1 hour.

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#### 4.RESULTS

##### 4.1. V-Block (Antimicrobial Coated sample)- SARS-CoV-2 (Covid-19) Clinical isolate (GenBank: MT955161.1)

TEST	Test Material	(Log TCID <sub>50</sub> )		Results	
		Result	Mean		
Virus titration	Stock virus	7.67	-	OK	
Cytotoxicity	Control Glass 1	0,5	0.5	OK	
	Control Glass 2	0,5			
	Control Glass 3	0,5		OK	
	Test Glass	0,5	0.5	OK	
	Test Glass	0,5		OK	
	Test Glass	0,5		OK	
Neutralization Control (interference)	Control Glass 1	4,67	4,61	OK	
	Control Glass 2	4,50		OK	
	Control Glass 3	4,67		OK	
	Negative Control	5,50	-	OK	
	Test Glass 1	4,33	4,39	OK	
	Test Glass 2	4,50			
	Test Glass 3	4,33			
t0 hour virus infectivity test	Control Glass 1	5,33	5,40	OK	
	Control Glass 2	5,17			
	Control Glass 3	5,67			
Virucidal Test (t1 hour)	Control Glass 1	5,67	5,61	R= Ct1-Ct0	R=1,23 ( 94,1%)
	Control Glass 2	5,67		R=0,21	
	Control Glass 3	5,50			
	Test Glass 1	4,50	4,39	R= Tt1-Ct0	
	Test Glass 2	4,33		R=-1,01	
	Test Glass 3	4,33			

## 4.2. Raw Data

### 4.2.2. V-Block (Antimicrobial Coated sample)- 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 infectivity dose	Control 1	444444	444444	444444	434023	000000	000000	
	Control 2	444444	444444	444444	030032	000000	000000	
	Control 3	444444	444444	444444	340344	000000	000000	
Cytotoxicity	Control 1	000000	000000	000000	-	-	-	-
	Control 2	000000	000000	000000	-	-	-	-
	Control 3	000000	000000	000000	-	-	-	-
	Test 1	000000	000000	000000	-	-	-	-
	Test 2	000000	000000	000000	-	-	-	-
	Test 3	000000	000000	000000	-	-	-	-
Neutralization (interference)	Control 1	444444	444444	430430	210200	000000	-	-
	Control 2	444444	444444	443200	020100	000000	-	-
	Control 3	444444	444444	034332	002100	000000	-	-
	Test 1	444444	444444	200340	000130	000000	-	-
	Test 2	444444	444444	430230	210000	000000	-	-
	Test 3	444444	444444	430400	010200	000000	-	-
	Negative Interference	444444	444444	444444	444244	000000	000000	-
T1 Hour	Control 1	444444	444444	444444	432044	200000	000000	-
	Control 2	444444	444444	444444	444324	030000	000000	-
	Control 3	444444	444444	444444	443424	000200	000000	-
	Test 1	444444	444444	434244	000000	000000	000000	-
	Test 2	444444	444444	302433	000000	000000	000000	-
	Test 3	444444	444443	034244	000000	000000	000000	-

## 5. KEEPING WORK RECORDS

**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.

## 6. Keeping Test Material:-

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