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<b>Customer Address</b>	Çayirova Campus, Tuzla, 34950 Istanbul, Turkey
<b>Contact</b>	Fatih Kasap
<b>Test Requested</b>	Assessment of effect of test device on bacterial and viral viability
<b>Sample Description</b>	Beko BK 9141 HJ Washing Machine (7158150200)
<b>Number of Samples</b>	1
<b>Date of Receipt</b>	16 July 2020
<b>ASC Code</b>	ASC003961
<b>Report Number</b>	ASCR092430v2
<b>Report Date</b>	20 November 2020

## 1. Purpose

This report outlines the results of the study performed to assess the ability of the Beko BK 9141 HJ Washing Machine – Hygiene Therapy Program (2 kg capacity) to remove bacteria and virus.

## 2. Test Item Description

The Beko BK 9141 HJ Washing Machine was submitted to airmid healthgroup on 16<sup>th</sup> July 2020 (Figure 2.1).



**Figure 2.1. BEKO BK 9141 HJ Washing Machine**

### 3. Materials

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#### 3.1. *Staphylococcus aureus* subsp. *aureus* Rosenbach (ATCC® 6538™)

*S. aureus* is a Gram-positive, round-shaped bacterium that is a common member of the microbiota of the body, frequently found in the upper respiratory tract and on the skin.

#### 3.2. *Escherichia coli* (Migula) Castellani and Chalmers (ATCC® 8739™)

*E. coli* is a Gram-negative, facultative anaerobic, rod-shaped, coliform bacterium commonly found in the lower intestine of warm-blooded organisms.

#### 3.3. *Escherichia coli* bacteriophage MS2 (ATCC® 15597-B1™)

MS2 Bacteriophage is a non-enveloped, single stranded RNA virus that belongs to the *Leviviridae* family. It infects *Escherichia coli* bacteria and other members of the *Enterobacteriaceae*.

MS2 is a commonly used surrogate for the influenza virus and is now being used as a surrogate for other RNA viruses, such as SARS CoV-1 and SARS CoV-2, the virus causing COVID-19.

## 6. Conclusion

The Beko BK 9141 HJ Washing Machine was demonstrated to be effective in reducing the tested organisms, achieving:

- 99.97% reduction against *S. aureus*
- 99.99% reduction against *E. coli*
- 99.84% reduction against MS2,

after 58 minutes of exposure to the Hygiene Therapy Program.

MS2 has a similar structure to enteric viruses and is often used as a surrogate for such viruses in the assessment of virucidal decontaminants [3]. MS2 has been demonstrated to be more heat resistant than “most viruses” and thus is considered a “conservative surrogate” in the pasteurisation of wastewater [4], for example. It is also the most commonly used surrogate in both Europe and the US to assess the effectiveness of drinking water treatment processes [5].

## 7. Additional Products

According to the Declaration of Conformity signed by Arçelik the products listed below conform in all aspects relating to performance in testing parameters to the Beko BK 9141 HJ Washing Machine.

- 7158143100 WTE 10736 CHT
- 7158143000 WTE 10746 CHT
- 7163320100 9141 HJ
- 7158143500 WEY104064TW
- 7148941900 WFL1014VTSP
- New Item(A39554) WTE10736CHT1
- 7178844200 WTE10736HT
- 7148942000 WTE 10736 CHT
- New Item(A40122) WTE14736HT
- 7165146400 HTV 7736 XHT
- 7170243000 WDW 95145 PSI
- 7170243100 WDW 95145 PMI
- 7165146000 HTV 7736 XSHT
- 7168741200 WDA 106145 PMI
- 7165146100 HTV 8736 XSHT
- 7162545000 WDEY854044HW
- 7162544700 HTV854WHT
- 7165146200 HTV7736SHT
- 7165146300 HTV7736XSHT1
- 7162545200 HTV 8736 XHT
- New Item(A39183) HTV 8736 XSHTR
- New Item(A39556) HTV7736XSHT1
- New Item(A39557) HTV8736XSHT1

## 8. References

- [1]. BS EN ISO 20743:2013 Textiles — Determination of antibacterial activity of textile products
- [2]. BS ISO 18184:2019 Textiles — Determination of antiviral activity of textile products
- [3]. Wyrzykowska-Ceradini B, Calfee MW, Touati A, Wood J, Mickelsen RL, Miller L, Colby M, Slone C, Gatchalian NG, Pongur SG, Aslett D. 2019. The use of bacteriophage MS2 for the development and application of a virucide decontamination test method for porous and heavily soiled surfaces. J Appl Microbiol 127:1315–1326
- [4]. Lau M., Monis P., Ryan G., Salveson A., Fontaine N., Blackbeard J., Gray S., Sanciolo P. (2020) Selection of surrogate pathogens and process indicator organisms for pasteurisation of municipal wastewater—A survey of literature data on heat inactivation of pathogens. Process Safety and Environmental Protection, 133 , pp. 301-314
- [5]. Boudaud, N., Machinal, C., David, F., Freval-Le Bourdonnec, A., Jossent, J., Bakanga, F., Arnal, C., Jaffrezic, M.P. et al. (2012) Removal of MS2, Qb and GA bacteriophages during drinking water treatment at pilot scale. Water Res 46, 2651–2664

## 9. Amendment History

Page	Section	Description of amendment
5	4.2.2 b)	Amended product name
5	4.2.2 b)	Amended cycle name
6 – 8	5	
8	9	Added details and references about use of MS2 as a surrogate.
10	8	

This report, ASCR092430v2, supersedes previous versions



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**\*\*\*End of Report\*\*\***