

MICROBIOLOGICAL EFFICACY ANALYSIS REPORT

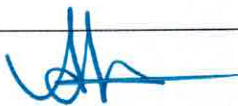
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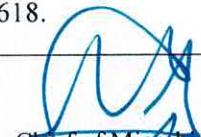
Subject: Analysis

20.11.2020

| | |
|---|--|
| Report Registration Number | BP200158-2 |
| Full name of product | Neffes 400 U HAVA TEMİZLEME CİHAZI (NFS 400 U) |
| Owner of the Licence/product | Form Endüstri Tesisleri Sanayi A.Ş. |
| Product Type | Biocidal products without active substances |
| Area of use | Air Disinfection |
| Properties of Cabin (Size, UV lamp count) | It is specified in the scheme in Annex-1 of the cabinet. |
| Properties of UV lamp | 1 Uv-C lamp, 25 watts |
| Size of Aerosols | 4-10 µm |
| Temperature-humidity | 24 °C-50 % |
| Application time | 15 ,30 and 60 minutes |
| Start and end date of Analyses | 14.10.2020-28.10.2020 |
| Evaluation | Neffes 400 U HAVA TEMİZLEME CİHAZI (NFS 400 U) achieved > 4 log reduction at the specified test conditions over 60 minutes, 4.02 for <i>Bacillus subtilis</i> DSM 618. |



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| MICROBIOLOGICAL TEST RESULTS | |
|---------------------------------|---|
| METHOD | GB 21551-3, 2009; ASHRAE, 2014a; ISO 15714, 2019 |
| AIR SAMPLING METHOD | Active air sampling /Merck MAS 100 |
| PLATE COUNT METHOD | Air sampling method and pour plate technique |
| TEST ORGANISMS | <i>Bacillus subtilis</i> DSM 618 |
| INCUBATION TEMPERATURE AND TIME | 32 °C (±1), 24-48 hours |
| MEDIUM USED IN TEST | Nutrient Agar |
| SUMMARY OF THE METHOD | <p>Suspension of 18-20 hours test organisms was prepared according to McFarland No: 2 (6.0×10^8 cfu / ml). This suspension was sprayed in the form of aerosol of 4-10 μm into the test cabin where the tested device was located. In order to determine the amount of bacteria decreasing spontaneously, air samples were taken in 15-minute periods with the air sampling device to the petri dishes containing the medium (Control trial). Before the device was started (0 minutes) and after the device was started, air samples were taken back to the petri dishes with the air sampling device at periods in accordance with the technical specifications of the device. Colonies were counted after the petri dishes were incubated at $32 \pm 1^\circ\text{C}$ for 24-48 hours. Time dependent calculation obtained in control trials is given in the table "Before UVC Application". Here, the spontaneous reductions obtained depending on the time were subtracted from the logarithmic reduction value obtained after UVC application.</p> <p>Spontaneous reduction ($\log R_K$) = Control Test bacterial count at 0 min ($\log N_{K0}$) – Control test t. bacterial count per minute ($\log N_{Kt}$)</p> <p>Amount of reduction ($\log R$) = [0. Bacterial count per minute ($\log N_0$) - Spontaneous reduction ($\log R_K$)] - Bacteria count after application ($\log N_t$)</p> |



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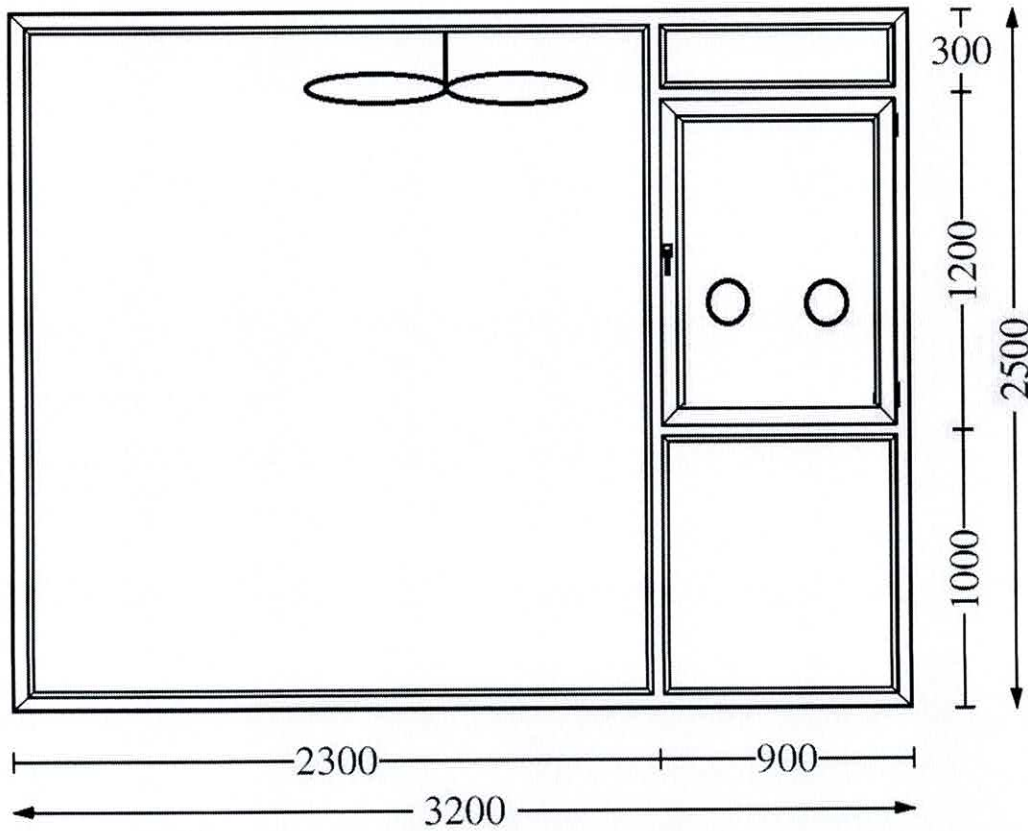
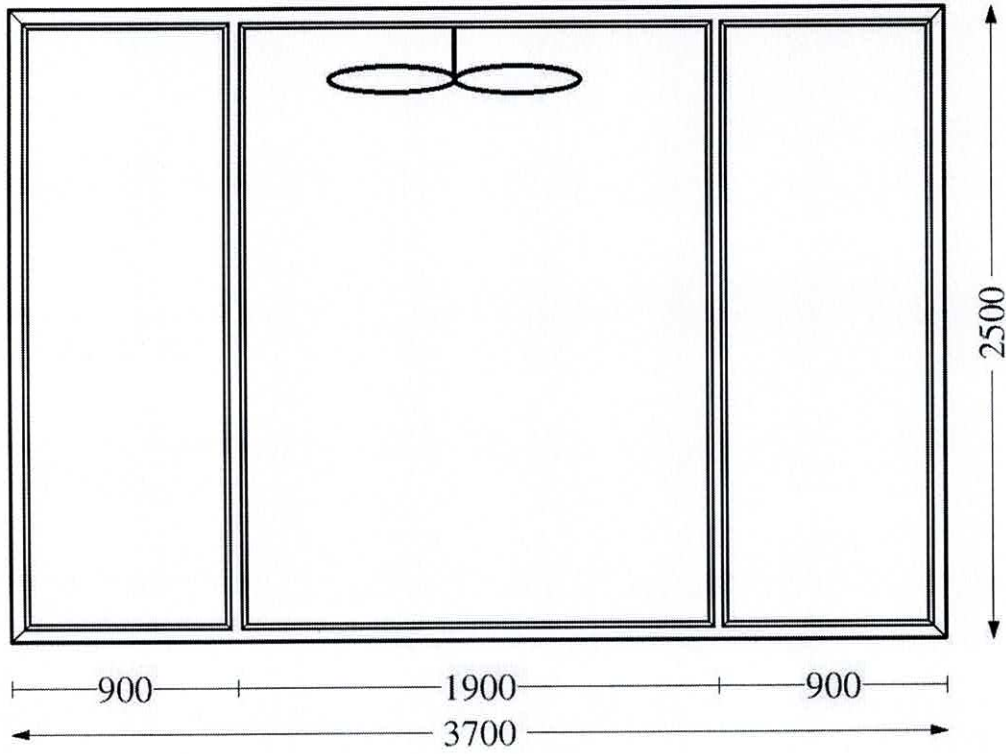
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| Test Organism (<i>Bacillus subtilis</i> DSM 618) | | | |
|---|------------------------------------|-------------------|---|
| Before UVC Application | | | |
| Time (min) | Colony count (cfu/m ³) | Log | Spontaneous reduction according to initial concentration (LogR _k) |
| 0 | 3.2 x 10 ⁷ | 7.51 | - |
| 15 | 5.6 x 10 ⁶ | 6.75 | 0.76 |
| 30 | 2.0 x 10 ⁶ | 6.29 | 1.22 |
| 60 | 3.9 x 10 ⁵ | 5.59 | 1.92 |
| After UVC Application | | | |
| Time (min) | Colony count (cfu/m ³) | LogN _t | LogR |
| 0 | 1,7 x 10 ⁷ | 7,24 | - |
| 15 | 6,0 x 10 ⁵ | 5,78 | 0,70 |
| 30 | 4,0 x 10 ³ | 3,60 | 2,42 |
| 60 | <20 | <1,30 | >4,02 |

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Annex 1: Scheme and dimensions of the cabinet



MICROBIOLOGICAL EFFICACY ANALYSIS REPORT**NOTE:**

1. This report includes only results of delivered samples.
2. Test results cannot be used for commercial purposes on TV or in press.
3. This report shall not be copied or transmitted without the written permission of the laboratory.
4. This report is not valid without signature.
5. We shall not be held responsible for the determination of test items and operation of the sampling procedure.

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