Wydział Rolnictwa i Biotechnologii
Uniwersytet Technologiczno-Przyrodniczy w Bydgoszczy

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Bydgoszcz, 15.10.2020

Test Report No. 1/10/2020

Test subject: Sayoli air flow steriliser

Customer: Planika Sp. z o.o.
ul. Bydgoska 38
86-061 Brzoza

The test subject was collected and delivered by the Customer on: 08.10.2020
The test commenced on: 08.10.2020
The test was completed on: 14.10.2020

Type of feature/ characteristic	Microbiological analysis result			
Analysis of air contamination during the operation of a lamp	Total number of microorganisms		Number of moulds and yeasts	
	*[cfu/m^3]	Microorganism reduction [%]	[cfu/m^3]	Microorganism reduction [%]
before staring the lamp	240	-	295	
after 2 hours of operation	32	R_{2h}=86.67%	102	R_{2h}=65.43%
after 6 hours of operation	20	R_{6h}=91.67%	78	R_{6h}=73.56%
after 20 hours of operation	10	R_{20h}=95.84%	48	R_{20h}=83.73%

*cfu – colony forming units converted to the number of microorganisms per 1 cubic meter of air

The results constitute an average number of microorganisms based on three measurements.

Approved by:
dr hab. inż. Barbara Breza-Boruta

Determination of the effectiveness of air disinfection with the use of a Sayoli air flow steriliser

Object and scope of the analysis

The object of this analysis was to determine the effectiveness of air disinfection with the use of a Sayoli air flow steriliser by determining the number of microorganisms and the number of moulds and yeasts after 2, 6, and 20 hours of operation of the lamp in a confined room with an area of approx. $15m^2$.

Analysis methodology

The analysis was performed using a method approved for diagnostic microbiology and the user manual of a MAS-100 Eco™ Microbial Air Sampler (manufactured by Merck, Germany) used for the collection of air samples. A PCA substrate was used to isolate the total number of microorganisms (pursuant to PN-EN ISO 4833:2013-1, part 1 and 2) and YGC medium with chloramphenicol was used for selective isolation of moulds and yeasts (PN-ISO 6611:2007). The germicidal lamp was placed in the centre of a room with an area of approx. $15m^2$ (3.5m high) and the measurements of microbiological contamination were taken 1.5m from the lamp. The air samples were collected with an impact method using a Mas 100 Eco™ device four times, i.e. before turning on the lamp (*'0'* time) and after 2, 6, and 20 hours of operation of the lamp. Every time the probe was set 1.2m above the ground and a precise quantity of air was collected through a perforated plate. The inflow of air bioaerosol was directed to a sterile PCA or YGC agar plate in a standard Petri dish (with a diameter of 90mm). The velocity of air flow through the perforated plate in the device head was 100 l/min, which made it possible to collect up to 1000 litres of air in a single cycle. Once the air samples had been collected, the Petri dishes were incubated at 30°C for 72h or at 25°C for 120h. The number of cultured colonies and their population was counted after the incubation.

Result analysis

The concentration of microorganisms in the examined air was specified as colony forming units (cfu). The resulting cfu population was corrected using a Feller's statistical correction table for the Mas-100 air monitoring system and then was converted to the number of microorganisms in a cubic metre of air (cfu/m^3).