

Microbial Cleanliness (Bioburden) of Medical Masks Final Report

Test Article: BL2020081201
 Purchase Order: PO2020000042
 Study Number: 1336325-S01
 Study Received Date: 28 Aug 2020
 Testing Facility: Nelson Laboratories, LLC
 6280 S. Redwood Rd.
 Salt Lake City, UT 84123 U.S.A.
 Test Procedure(s): Standard Test Protocol (STP) Number: STP0036 Rev 15
 Customer Specification Sheet (CSS) Number: 202004836 Rev 01
 Deviation(s): None

Summary: The testing was conducted in accordance with EN 14683:2019, with the exception of approximate volumes of eluent used when performing the extraction procedure and a temperature range of 30-35°C used for aerobic incubation.

When bioburden results are calculated using a software program, manual calculations may differ slightly due to rounding. The counts determined on products are colony forming units and may not always reflect individual microorganisms. The sponsor performs any statistical analysis and determines the acceptable limits. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 820.

Results:

Unit Number	Weight (g)	Aerobic	Fungal	Total Bioburden (CFU/mask)	Total Bioburden (CFU/g)
1	2.8	<3	<3	<5.8	<2.1
2	2.7	6	<3	<8.8	<3.3
3	2.7	3	<3	<6.1	<2.2
4	2.7	3	<3	<5.9	<2.2
5	2.5	32	<3	<34.7	<13.9
Recovery Efficiency	19.2%				

Note: The results are reported as colony forming units (CFU) per mask.
 < = No Organisms Detected



Carl Danielson electronically approved for
Study Director

Robert Putnam

30 Sep 2020 14:45 (+00:00)
Study Completion Date and Time

Method Suitability:

Organism	Percentage
<i>Bacillus atrophaeus</i>	92%

Test Method Acceptance Criteria: If applicable, anaerobic controls are acceptable for the bioburden test results. The number of masks to be tested shall be a minimum of 5 or more to meet an acceptable quality level of 4%. The bioburden of the medical mask shall be < 30 CFU/g tested.

Procedure:

- Positive Controls/Monitors: *Bacillus atrophaeus*
- Extract Fluid: Peptone Tween[®]
- Extract Fluid Volume: ~300 mL
- Extract Method: Orbital Shaking for 15 minutes at 250 rpm
- Plating Method: Membrane Filtration
- Agar Medium: Tryptic Soy Agar
Potato Dextrose Agar
- Recovery Efficiency: Exhaustive Rinse Method
- Aerobic Bacteria: Plates were incubated 3-7 days at 30-35°C, then enumerated.
- sFungal: Plates were incubated 5-7 days at 20-25°C, then enumerated.