



ITS LABORATORY

(An ISO 9001: 2015, ISO 14001:2015, ISO 45001:2018 Certified Laboratory)
 Laboratory: A-91, Sector 80, Phase-2, Noida-201301, (U.P)
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TEST REPORT

MASK TEST

Report Code: MS-120920-01

Issue Date: 16/09/2020

Issued To :

Nirvana India Private Limited
B-1 Extension A 41 1st Floor Mohan
Cooperative Industrial Estate,
New Delhi-110044.

PART A: Particulars of Sample submitted

A.	Sample Description	:	Nirvana Mask
B.	Batch No.	:	NM001
C.	Date of Sample Received	:	12/09/2020
D.	Date of Commencement of Testing	:	14/09/2020
E.	Date of completion of Testing	:	16/09/2020
F.	Test Method	:	NIOSH & IS:9473:2002
G.	Sample submitted By	:	Customer
H.	Instrument Used	:	Breathing machine, Aerosol Generator, Pressure Probe etc.

TEST RESULT

S.No.	Test Parameter	Test Method	Unit	Result	Requirement
1.	Material				
	1. Deformation of the face piece	IS:9473:2002, Annex A 1	-	Pass	During conditioning none of the filtering masks shall have Suffered deformation of the face piece or straps.
	2. Collapse	IS:9473:2002, Annex A 1.1 & A1.2	-	Pass	During conditioning in filtering half mask shall Not collapse.
	3. Nuisance	IS:9473:2002	-	Pass	Material from the filter media released by the air flow through the filter should not constitute nuisance for the wearer.
	4. Frictional sparks	IS:9473:2002	-	Pass	Frictional sparks capable of igniting flammable gas mixtures for exposed parts Shall be restricted to a minimum.



2.	Cleaning and Disinfecting	IS:9473:2002	-	Pass	Shall withstand the cleaning and disinfecting agents
3.	Practical Performance Test a) Head harness comfort b) Security of fastenings c) Field of vision	IS:9473:2002, Annex A 2	-	Pass Pass Pass	To be pass To be pass To be pass
4.	Leakage a) Total Inward Leakage b) Penetration of Filter Material (Sodium Chloride Test: Initial penetration of sodium chloride test Aerosol @ 95 lpm)	IS:9473:2002, Annex A 3	% %	3.27 4.36	8 max 6 max
5.	Compatibility with skin	IS:9473:2002	-	Pass	To be Pass
6.	Carbon dioxide content	IS:9473:2002 Annex A 6	%	0.82	1 Max
7.	Breathing Resistance a) Inhalation permitted resistance @ 95 l/min b) Exhalation permitted resistance @ 160 l/min	IS:9473:2002	mbar mbar	2.24 2.71	2.4 max 3.0 max
8.	Clogging (Dolomite) A) Breathing resistance after clogging i) Filtering masks iii) Filter penetration	IS:9473:2002 Annex A 9	mbar %	2.82 0.95	4 max 6 max
9.	Demountable Parts	IS:9473:2002 Annex A 11	-	Pass	Demountable Parts should be readily connected and secured.

10. Splash Resistance Pressure

S.No.	Parameter	Test Method	Units	Result	Limit
1.	Splash Resistance Pressure	ASTM F-1862-07	mmHg	130	120

11. Filter Efficiency as per NIOSH Standard

Summary: This procedure was performed to evaluate particulate filter penetration as specified in 42 CFR Part 84 for requirements on a N95 respirator/ Mask. Respirators were conditioned then tested for particle penetration against a polydispersed, sodium chloride (NaCl) particulate aerosol. The challenge aerosol was dried, neutralized, and passed through the test article at a concentration not exceeding 200 mg/m³ the initial airflow resistance and particle penetration for each respirator was determined. According to 42 CFR Part 84.64, pretesting must be performed by all applicants as part of the application process with NIOSH. Results seen below are part of that pretesting and must be submitted to and accepted by NIOSH for respirator approval.



TEST RESULT

Article Number	Initial Airflow Resistance (mm H ₂ O)	Particle Penetration (%)	Filtration Efficiency (%)
1	15.7	4.55	95.45
2	14.1	4.53	95.47
3	15.5	4.87	95.13
4	14.2	4.66	95.34
5	14.1	4.56	95.44

Results: The NIOSH N95 filter efficiency as stated in 42 CFR Part 84.181 is a minimum efficiency of filter is 95.0 %. The test articles submitted by the customer confirm to the NIOSH N95 criteria for filter efficiency (Equivalent to FFP3, EN 149-2001, +A1-2009).

12. Flammability Test

S.No	Name of the Test	Test Method		
1.	Flame Spread Rate	IS:9473 Annexure 5		
	Specimen	Flame Chamber	Flammability (Char length in mm)	Classification
	Mask	-	28	Self Extinguished
	Requirement: Does not burn to continuously after removal of flame.			
	Remarks: On the basis of above test, sample and pass the test.			

13. Bacterial Filtration Efficiency (BFE):

S.No.	Name of test Bacteria	Recovered Bacteria After Filtration	Bacterial Before Filtration Through Mask	Percent Reduction compared to Control Sample
1.	<i>Staphylococcus aureus</i> (MTCC 737)	1.7 x 10 ³	3.4 x 10 ⁵	99.5
2.	<i>E.Coli</i> (MTCC 443)	1.5 x 10 ³	3.3 x 10 ⁵	99.54
3.	<i>Aspergillus niger</i> (MTCC 282)	1.4 x 10 ³	3.5 x 10 ⁵	99.6

NOTES: Test Method: ASTM F 2101

Flow rate: 28.3 LPM

Area Tested: 36 cm²

Side Tested: Both Side

Remarks: On the basis of above tested parameter it is concluded that sample having Anti bacterial Filtration Efficiency compared to control sample. So removes bacteria during process of filtration with more than 99% efficiency.

Notes:

1. The results given above are related to the tested sample, as received & mentioned Parameters.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written Permission of the laboratory.

Checked by
Susti

Authorized Signatory
V & V
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Sector 80, Phase-2, Noida U.P.