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6991 Millcreek Drive, Unit 13
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Report For:	Canada Masq Corporation 4-10 Brodie Drive Richmond Hill, Ontario L4B 3K8 Phone: 647-628-9615 Email: anthonyz@canadamasq.com	**Laboratory #:** **Report Date:** **Received Date:**	864813-21 REVISED October 4, 2021 June 14, 2021
Attention:	Anthony Zhao		
Specimen:	#1: CA-N95 FLAT-FOLD RESPIRATOR		

TEST REPORT

One specimen, consisting of respirators, identified as CA-N95 FLAT-FOLD, was submitted to CMTL for assessment of particulate filter efficiency, airflow resistance and mechanical strength of headstrap or head harness properties to evaluate acceptability with Health Canada performance criteria for filtering facepiece respirators (Date published: 2020-08-25, Date modified: 2021-02-02).

Revision: Information added to the Specimen identification and photographs added as per customer request.
Revision Date: October 4, 2021

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Per _____
Authorized By Stephen Brown

Per _____
Technician, Derek Wild

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Laboratory #864813-21 REVISED
Canada Masq Corporation

Requirement for Filtering Facepiece Respirators per
Health Canada National Standard Specifications for Respirators during COVID-19:
Guidance for Canadian Manufacturers, Date published: 2020-08-25, Date modified: 2021-02-02

Characteristic	**Barrier**	**Summary Results**
Particulate Filter Efficiency (%)	≥95	**Pass**
Mechanical Headstrap Strength, Observations and Proof Load (Newtons)	≥20	**Pass**
Airflow (Inhalation) Resistance, mmH_2O (Pa)	≤35 (343)	**Pass**
Airflow (Exhalation) Resistance, mmH_2O (Pa)	≤25 (245)	**Pass**

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PARTICULATE FILTER EFFICIENCY

Fourteen submitted specimens were evaluated for particulate filter efficiency based on the TEB-APR-STP-00059 test procedure, with exceptions based on appropriate NRC deviations for maximum expected particle loading being used to filter ambient air in a hospital (medical) or other non-industrial setting.

Seven of the specimens were conditioned (C) within a CSZ environmental control chamber for 25±1 hour at a 85±5% relative humidity and 38°C ± 2.5°C, then tested within 10 hours of extraction from the chamber as indicated in NIOSH standard procedure TEB-APR-STP-0059. A remaining seven additional specimens were also tested to evaluate the effect of no conditioning (U), based on NRC recommendations, to assess composition of filtering material.

The particulate filter efficiency was performed on a TSI 8130A automated filter tester, and challenged for 4-minutes under unidirectional airflow at 85 L/min ± 4 L/min with an aerosol of sodium chloride (NaCl) particles. The particles were generated by an aerosol generator and neutralized to their Boltzmann equilibrium state. The particles were considered to have an average count median diameter of 0.075 ± 0.020 micrometers and a geometric standard deviation not exceeding 1.86. This was equivalent to approximately 7.5 mg of NaCl loading.

RESULTS

Specimen #	Conditioned	Flow Rate	Initial Filter Resistance (mmH_2O)	Maximum Allowable Leakage (%)	Initial Leakage (%)	Maximum Leakage (%)	Particulate Filtration Efficiency (%)	Requirement (≥95%)	
								Result	Overall Result
1-1	C	85	9.81	5.00	0.26	0.27	99.73	**Pass**	**Pass**
1-2	C	85	9.88	5.00	0.55	0.55	99.45	**Pass**	
1-3	C	85	9.48	5.00	0.42	0.42	99.58	**Pass**	
1-4	C	85	10.11	5.00	0.42	0.42	99.58	**Pass**	
1-5	C	85	10.38	5.00	0.55	0.59	99.41	**Pass**	
1-6	C	85	9.52	5.00	0.21	0.21	99.79	**Pass**	
1-7	C	85	10.42	5.00	0.57	0.58	99.42	**Pass**	
1-8	U	85	9.95	5.00	0.18	0.18	99.82	**Pass**	
1-9	U	85	9.81	5.00	0.19	0.19	99.81	**Pass**	
1-10	U	85	10.03	5.00	0.12	0.12	99.88	**Pass**	
1-11	U	85	10.14	5.00	0.10	0.10	99.90	**Pass**	
1-12	U	85	9.95	5.00	0.50	0.51	99.49	**Pass**	
1-13	U	85	9.52	5.00	0.24	0.24	99.76	**Pass**	
1-14	U	85	9.88	5.00	0.15	0.15	99.85	**Pass**	

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MECHANICAL HEADSTRAP STRENGTH

Ten submitted specimens were subjected to proof load testing in accordance with Health Canada National Standard Specifications for Respirators during COVID-19: Guidance for Canadian Manufacturers (Date published: 2020-08-25, Date modified: 2021-02-02). Testing was performed by donning the mask body on to a head form. A proof load of 10 N was then applied to the elastomeric strap for 10 seconds. The proof load was then removed and the specimens were examined for failure. Testing machine was operated in accordance with ASTM A370-20 paragraph 8 with a test speed of 75mm/min.

RESULTS

Specimen #	Observations	Result
1-1	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**
1-2	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**
1-3	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**
1-4	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**
1-5	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**
1-6	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**
1-7	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**
1-8	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**
1-9	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**
1-10	There was no evidence of breakage, tearing, separation from the point of fixation to the respirator body, permanent deformation or other obvious loss of function in the securing mechanism.	**Pass**

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AIRFLOW (INHALATION) RESISTANCE

Twenty submitted specimens were evaluated for airflow (inhalation) resistance based on TEB-APR-STP-0007 using a TSI 8130A automated filter tester considered by NIOSH to be an acceptable pressure drop measurement.

Tests were performed with the salt generator turned -off under no loading conditions. Using hot-melt glue the filtering facepiece respirators were sealed onto flat plates with joint for connection to the resistance apparatus for measurements of pressure drop.

RESULTS

Specimen #	Maximum Allowable Resistance (mmH_2O) Inhalation	Actual Resistance (mmH_2O) Inhalation	Requirement (≤35)	
			Result	Overall Result
1-1	35	9.9	**Pass**	**Pass**
1-2	35	9.6	**Pass**	
1-3	35	9.9	**Pass**	
1-4	35	10.0	**Pass**	
1-5	35	9.7	**Pass**	
1-6	35	9.3	**Pass**	
1-7	35	9.7	**Pass**	
1-8	35	9.9	**Pass**	
1-9	35	10.2	**Pass**	
1-10	35	9.7	**Pass**	
1-11	35	9.9	**Pass**	
1-12	35	10.0	**Pass**	
1-13	35	9.5	**Pass**	
1-14	35	9.6	**Pass**	
1-15	35	9.5	**Pass**	
1-16	35	9.6	**Pass**	
1-17	35	9.8	**Pass**	
1-18	35	9.5	**Pass**	
1-19	35	9.4	**Pass**	
1-20	35	9.6	**Pass**	

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AIRFLOW (EXHALATION) RESISTANCE

Twenty submitted specimens were evaluated for airflow (inhalation) resistance based on TEB-APR-STP-0003 using a TSI 8130A automated filter tester considered by NIOSH to be an acceptable pressure drop measurement.

Tests were performed with the salt generator turned off under no loading conditions. Using hot-melt glue, the filtering facepiece respirators were sealed onto flat plates and mounted in reverse with joint for connection to the resistance apparatus for measurements of pressure drop.

RESULTS

Specimen #	Maximum Allowable Resistance (mmH_2O) Exhalation	Actual Resistance (mmH_2O) Exhalation	Requirement (≤25)	
			Result	Overall Result
1-1	25	9.7	**Pass**	**Pass**
1-2	25	9.6	**Pass**	
1-3	25	9.7	**Pass**	
1-4	25	9.6	**Pass**	
1-5	25	9.6	**Pass**	
1-6	25	9.4	**Pass**	
1-7	25	9.5	**Pass**	
1-8	25	9.6	**Pass**	
1-9	25	9.8	**Pass**	
1-10	25	9.7	**Pass**	
1-11	25	9.8	**Pass**	
1-12	25	9.8	**Pass**	
1-13	25	9.5	**Pass**	
1-14	25	9.7	**Pass**	
1-15	25	9.6	**Pass**	
1-16	25	9.7	**Pass**	
1-17	25	9.9	**Pass**	
1-18	25	9.6	**Pass**	
1-19	25	9.5	**Pass**	
1-20	25	9.7	**Pass**	