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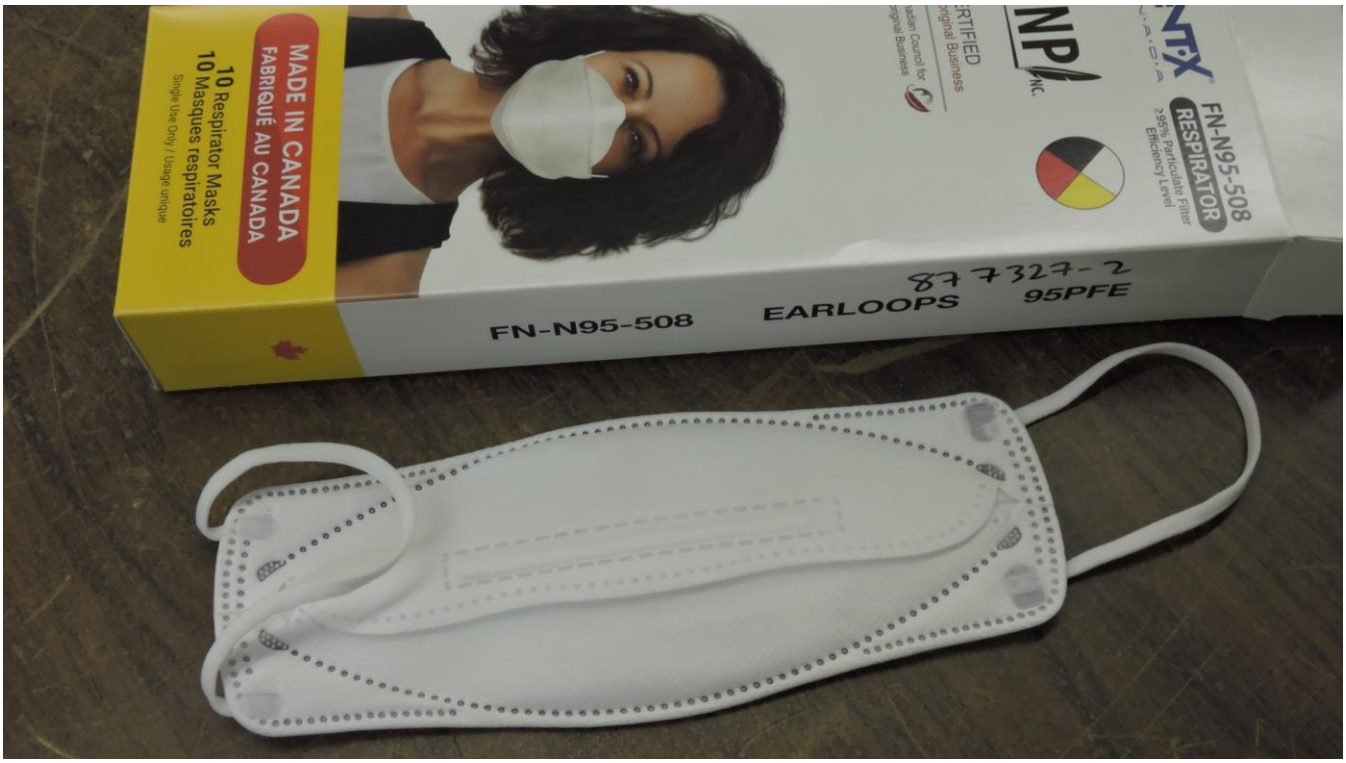
Report For:	Dent-X Canada 311 Bowes Road Main Unit Vaughan, Ontario L4K 1J1 Phone: 416 774 2476 Email: angelina@dent-xcanada.com	**Laboratory #:** **Report Date:** **Received Date:** **Customer P.O. #:**	877327B-21 FINAL December 24, 2021 December 10, 2021 3655
Attention:	Angelina Wu		
Specimen:	#2: FN-N95-508 Respirator		

TEST REPORT

One specimen, consisting of respirators were submitted to CMTL for assessment of mechanical headstrap strength to evaluate acceptability with both Health Canada performance criteria for filtering face piece respirators (Date published: 2020-08-25, Date modified: 2021-02-02) and 42 CFR Part 84 Subpart K, Sections 174 and 172 respectively.

Testing had also been conducted for particulate filter efficiency, airflow resistance, fluid resistance and flammability with results reported below from laboratory #877327D-21.



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Per _____
Authorized By Stephen Brown

Per _____
Technician, Derek Wild

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Laboratory #877327B-21 FINAL
Dent-X Canada

Requirement for Filtering Facepiece Respirators per both
Health Canada National Standard Specifications for Respirators during COVID-19:
Guidance for Canadian Manufacturers (Date published: 2020-08-25, Date modified: 2021-02-02)
and 42 CFR Part 84 Subpart K, Sections 172 and 174

Characteristic	**Barrier**	**Summary Results**
Particulate Filter Efficiency (%)	≥95	**Pass***
Airflow (Inhalation) Resistance, mmH_2O (Pa)	≤35 (343)	**Pass***
Airflow (Exhalation) Resistance, mmH_2O (Pa)	≤25 (245)	**Pass***
Fluid Resistance maximum pressure in kPa for pass result	21.3	**Pass***
Flammability, Class	1	**Pass***
Mechanical Headstrap Strength, Observations and Proof Load (Newtons)	≥20	**Pass**

* Test results reported under Laboratory #877327D-21 on December 17, 2021.

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PARTICULATE FILTRATION EFFICIENCY*

Twenty submitted specimens were evaluated for particulate filtration efficiency in accordance with TEB-APR-STP-0059 test procedure to evaluate acceptability with Health Canada and 42 CFR 84 Subpart K requirements for N95 respirators.

All twenty 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.

The particulate filter efficiency was performed on a TSI 8130A automated filter tester, and challenged 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.

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	C	85	9.7	5.00	1.755	1.755	98.2	**Pass**	**Pass**
2	C	85	9.1	5.00	1.966	1.966	98.0	**Pass**	
3	C	85	9.1	5.00	2.144	2.144	97.9	**Pass**	
4	C	85	9.6	5.00	1.670	1.670	98.3	**Pass**	
5	C	85	12.6	5.00	2.160	2.160	97.8	**Pass**	
6	C	85	9.2	5.00	1.997	1.997	98.0	**Pass**	
7	C	85	9.8	5.00	1.855	1.855	98.1	**Pass**	
8	C	85	12.2	5.00	2.172	2.172	97.8	**Pass**	
9	C	85	10.6	5.00	1.821	1.821	98.2	**Pass**	
10	C	85	9.6	5.00	1.991	1.991	98.0	**Pass**	
11	C	85	10.3	5.00	1.774	1.774	98.2	**Pass**	
12	C	85	10.5	5.00	1.887	1.887	98.1	**Pass**	
13	C	85	9.5	5.00	1.933	1.933	98.1	**Pass**	
14	C	85	9.4	5.00	1.723	1.723	98.3	**Pass**	
15	C	85	10.5	5.00	2.106	2.106	97.9	**Pass**	
16	C	85	12.4	5.00	2.294	2.294	97.7	**Pass**	
17	C	85	10.0	5.00	2.197	2.197	97.8	**Pass**	
18	C	85	9.9	5.00	1.920	1.920	98.1	**Pass**	
19	C	85	9.5	5.00	1.984	1.984	98.0	**Pass**	
20	C	85	9.7	5.00	1.893	1.893	98.1	**Pass**	

Note: As per Health Canada and 42 CFR Part 84 Subpart K, section 174(i) the minimum efficiency for each of the 20 filters will be determined and recorded and must be equal to or greater than 95% filtration efficiency.

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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	35	8.7	**Pass**	**Pass**
2	35	8.8	**Pass**	
3	35	9.0	**Pass**	
4	35	10.0	**Pass**	
5	35	10.0	**Pass**	
6	35	10.3	**Pass**	
7	35	11.9	**Pass**	
8	35	9.4	**Pass**	
9	35	9.1	**Pass**	
10	35	10.2	**Pass**	
11	35	10.7	**Pass**	
12	35	10.3	**Pass**	
13	35	10.4	**Pass**	
14	35	10.2	**Pass**	
15	35	12.5	**Pass**	
16	35	11.4	**Pass**	
17	35	12.1	**Pass**	
18	35	10.3	**Pass**	
19	35	10.1	**Pass**	
20	35	10.8	**Pass**	

* Test results reported under Laboratory #877327D-21 on December 17, 2021.

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AIRFLOW (EXHALATION) RESISTANCE*

Twenty submitted specimens were evaluated for airflow (exhalation) 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	25	8.8	**Pass**	**Pass**
2	25	8.8	**Pass**	
3	25	9.0	**Pass**	
4	25	9.5	**Pass**	
5	25	9.3	**Pass**	
6	25	9.4	**Pass**	
7	25	9.5	**Pass**	
8	25	9.3	**Pass**	
9	25	9.0	**Pass**	
10	25	8.9	**Pass**	
11	25	9.1	**Pass**	
12	25	9.4	**Pass**	
13	25	9.4	**Pass**	
14	25	9.1	**Pass**	
15	25	9.8	**Pass**	
16	25	9.4	**Pass**	
17	25	9.7	**Pass**	
18	25	9.3	**Pass**	
19	25	9.4	**Pass**	
20	25	9.4	**Pass**	

* Test results reported under Laboratory #877327D-21 on December 17, 2021.

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FLUID RESISTANCE
ASTM F1862/F1862M-17 at 21.3-kPa (160mmHg) Pressure

RESULTS

Specimen #	Test Pressure (mmHg)	Total Number of Specimens	Number of Pass Specimens
4	160	32	32

Note: Acceptable Quality Limit of 4.0% is met for single sampling plan when 29 or more of the 32 tested specimens show pass results.

Material construction type	FN-N95-510H
Supplier	Dent-X Canada
Lot number	A10B7CW11/29/2021 1577
Date of receipt	December 10, 2021
Date of test	December 17, 2021
Fluid velocity (cm/s)	647
Volume of impact fluid (ml)	2
Angle of pneumatic valve to horizontal	3°
Description target area mask	Outer Surface
Distance from tip cannula to mask (in)	12
Technique to enhance visual detection	Cotton swab used to lightly daub on the surface
Conditioning parameters	21±5°C, 85±5% R.H for minimum of 4 hours

NOTE: The outside surface of the mask is exposed to the blood stream in order to observe whether penetration occurred on the inner surface of the mask that could be contacting the wearer's face. Penetration on the inner facing of the mask constitutes failure (ASTM F1862/F1862M-17 section 4.2).

* Test results reported under Laboratory #877327D-21 on December 17, 2021.

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FLAMMABILITY

The specimen, consisting of 5 masks, was tested in accordance to 16 CFR 1610 (1-1-16 Edition).

RESULTS

	Specimen #	RESULT	CONCLUSION
Specimen #4	4-1	IBE	**Classified as Class 1**
	4-2	IBE	
	4-3	IBE	
	4-4	IBE	
	4-5	IBE	

IBE: Ignited but extinguished

Test: Flame Resistance 45˚ angle test. One-Second Flame Impingement.
Type of fabric: Without a raised fiber surface
Surface tested: Face
Type of test: Original State
Direction tested: Length
Testing Conditioning: Specimens conditioned at 105°C for 30 min, then placed in desiccator
Requirements: The flame spread time for textile products without a raised fibre surface must be greater than 3.5 seconds.
Date of Receipt: December 10, 2021
Date of Test: December 17, 2021

Note: For a test plan of 5 specimens, no failure is allowed for an Acceptable Quality Limit of 4.0%.

* Test results reported under Laboratory #877327D-21 on December 17, 2021.

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MECHANICAL HEADSTRAP STRENGTH

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Report For: Cambridge Materials Testing Limited
6991 Millcreek Drive, Unit 13
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Laboratory #: **879175-21**

Report Date: December 24, 2021
Received Date: December 15, 2021

Attention: Derek Wild

Customer P.O.#:

Specimen: Respirators, CMTL Mississauga Lab # 877327, Customer: Dent-X Canada, Identified as #2-FN-N95-508 Respirator

PROOF LOAD TEST REPORT

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: February 2, 2021. 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 specimen was examined for failure. Testing machine was operated in accordance with ASTM A370-20 paragraph 8 with a test speed of 75mm/minute.

RESULTS

Specimen	Observations
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.
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.
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.
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.
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.
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.
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.
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.
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.
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.

File Name

Cambridge Materials Testing Limited

Per Nicholas Wolfenberg — *Authorized By*

Per Brayden Dahmer — *Technician*