# Quantitative Fit Testing Report of Prescientx Nano Respirators

**02.04.2021**

## Prescient$^{X}$
## 900 Maple Grove Road, Unit 1-2, Cambridge, Ontario

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## INTRODUCTION

A formal evaluation of the fit factor of the Prescient$^{X}$ Nano Respirator was performed on Thursday, February 4, 2021 at Prescient$^{X}$ offices located at 900 Maple Grove Road, Unit 1-2 in Cambridge, Ontario, Canada. Fit testing was performed by **Chris Simonato Health and Safety Consultant of Hot Zone Training Consultants Inc**.

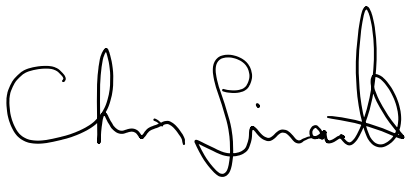
The purpose of the quantitative respirator fit testing was to:

1. Determine whether the respirators would successfully pass a quantitative respirator fit test on a variety of different face sizes as per the NIOSH Bivariate Panel Test.

The quantitative fit testing was conducted/performed in the following manner:

- Fourteen sample subjects were selected for the fit testing on February 4, 2021.
- Evidence was photographed identifying the fit testing results from each baseline test and is available upon request.

**Chris Simonato**
Health and Safety Consultant
Hot Zone Training Consultants Inc.
Dated: Tuesday February 9, 2021



## EXECUTIVE SUMMARY

A summary of the quantitative results of the fit testing on each sample N95 respirator have been included within the report's Executive Summary. The first fit testing consisted of a baseline test on each mask to verify that it would successfully fit each sample subject. The second fit test consisted of fit testing after ten ultraviolet light disinfection on the sample N95 respirators. Overall, each N95 respirator received a passing result on its' fit factor following ultraviolet light disinfection.

| SUMMARY OF FIT TESTING RESULTS | | | |
|---|---|---|---|
| | NIOSH SIZE | Overall Fit Factor Pass Value (100) | Pass / Fail Result |
| Beth Hunt | 1 | 141 | Test Passed |
| Maci Hunt | 1 | 129 | Test Passed |
| Sussy West | 2 | 200+ | Test Passed |
| Dawson Hunt | 3 | 144 | Test Passed |
| Dave Follest | 3 | 200+ | Test Passed |
| Keith Hunt | 4 | 200+ | Test Passed |
| Jessica Passmore | 5 | 199 | Test Passed |
| Guilherme Moreira | 5 | 200+ | Test Passed |
| Divij Patel | 6 | 200+ | Test Passed |
| Michael | 7 | 200+ | Test Passed |
| Richard Scott | 8 | 200+ | Test Passed |
| John Drieger | 9 | 200+ | Test Passed |
| Jay Shaw | 10 | 143 | Test Passed |

## EVIDENCE OF FIT TESTING EQUIPMENT ANNUAL CALIBRATION

The TSI PortaCount Model Pro 8038, owned by Hot Zone Training Consultants Inc., that was used to conduct the fit testing of the Nano respirators was machine serial number #8038144901. The device is considered a Class 1 laser product which complies with 21 CFR 1040.10 and 1040.11.

PortaCount Model Pro 8038, serial number #8038144907 received its annual calibration on January 21, 2021 from Concept Controls Inc., based on Cambridge, Ontario. The PortaCount was in good repair and standing at the time of the fit testing on February 4, 2021. Please see the attached Calibration Certificate for verification in **Appendix 1.**

## APPLICABLE QUANTITATIVE FIT TESTING METHOD AND PASS CRITERIA

The method of testing used for the fit testing of the sample N95 respirators and sample subjects was a quantitative respirator fit test identified in CSA Standard Z94.4-18, Annex C, C.1 Acceptable QNFT Methods, Clause C. The software within PortaCount Model Pro 8038, serial number #8038144907 is set to CSA Standard Z94.4-2002 requiring testing across each measure at 60 second intervals.

> C) QNFT using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a facepiece to quantify the respirator fit.

## DAILY PRESSURE / FLOW RATE RELATIONSHIP CHECK

The pressure and flow rate relationship of the bypass orifice was checked on the day of the assessment February 4, 2021) with setting set for “N95 Enabled”. The daily check resulted in a “**Test Passed**”.

**Daily Check Results:**

- **Minimum Particle Check = Passed 125 (>=30)**
- **Classifier Check = Passed**
- **Zero Check = Passed 2.0 (<= 30)**
- **Maximum Fit Factor Check = Passed 200+ (>=200)**

## PASSING CRITERIA

The applicable quantitative fit testing (QNFT) method and pass criteria for a tight-fitting respirator type of negative-pressure air-purifying particulate (N95) filtering face piece requires an **overall minimum fit factor score of 100**.

## TESTING METHODOLOGY

Testing of the Nano respirators were performed using the following steps.

1. Each Nano respirator was fitted with a grommet through the use of a punching tool to create a connection point between the respirator and the TSI PortaCount Model Pro 8038.

2. Each Nano respirator was then connected to the TSI PortaCount Model Pro 8038 by attaching a clear tubing to the grommet. The tube allows the TSI PortaCount Model Pro 8038 to detect the effectiveness of the fit (seal) between the sample N95 respirator and the sample subject wearing the mask.

3. The sample subjects were provided detailed instructions as to how they should don the sample respirator. The sample subjects then donned the assigned sample respirator, working to fit the respirator effectively to their face.

4. **Fit Test:** The sample subjects each fitted one (1) Nano respirator as part of the test. Once the sample subjects achieved as comfortable fit with their respective sample respirator, Hot Zone's Consultant performed a quantitative fit test using the TSI PortaCount Model Pro 8038. The fit test requires the sample subject to perform the following exercises for intervals of sixty (60) seconds each.

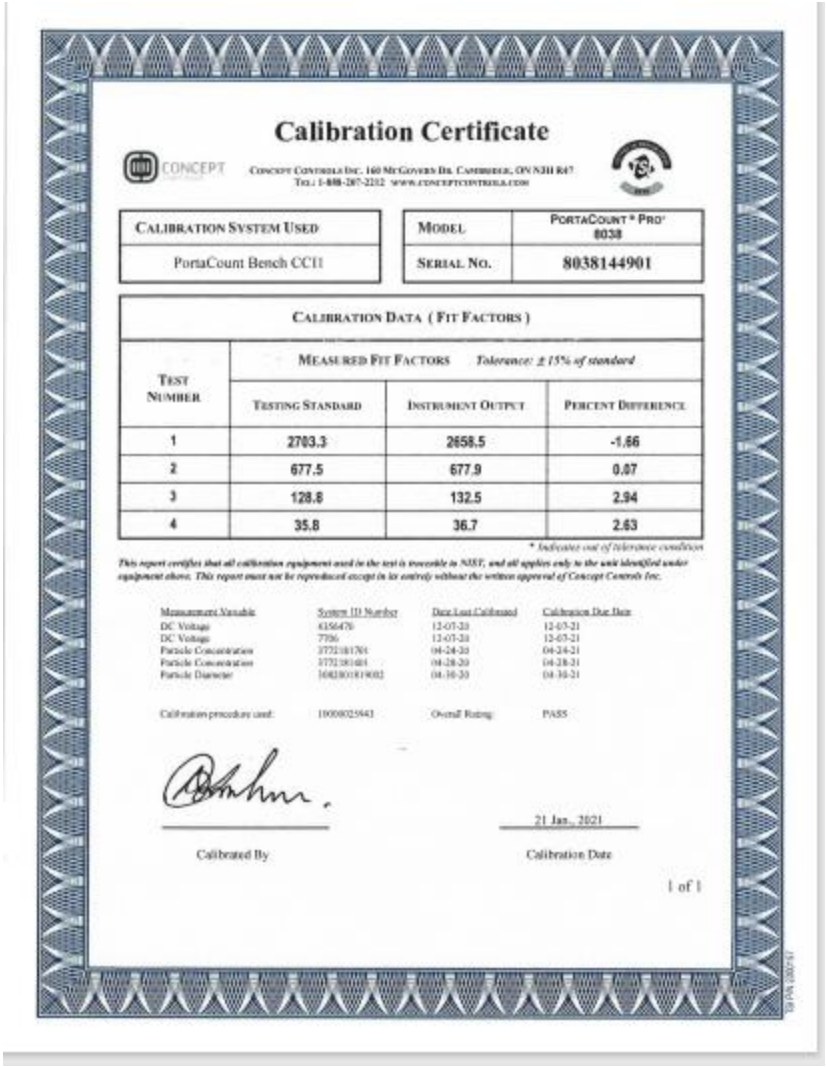
    - Normal Breathing
    - Deep Breathing
    - Turning Head Side to Side
    - Nod Head Up and Down
    - Talk Out Loud
    - Bending Over (While Sitting in a Chair)
    - Normal Breathing

5. Results were taken from sample subject using the TSI PortaCount Model Pro 8038 demonstrative mode of fit testing which identifies specific fit factors for each exercise, as well as an overall fit factor. The overall fit factor being the determining factor for a test PASS or FAIL.

6. Photographic evidence was collected showing the fit testing results of each fit test from the TSI PortaCount Model Pro 8038. Photos available upon request.

    Hot Zone Training Consultants does not make any representations that the Prescient$^{X}$ Nano respirator is guaranteed to fit all face sizes, but rather that of the NIOSH Face Panel sizes that were quantitatively mask fit tested for the Nano respirator, all sizes were able to pass with a score of at least 100, as descried above.

## APPENDIX 1 – PORTACOUNT ANNUAL CALIBRIATION CERTIFICATE



# Calibration Certificate

CONCEPT

Concept Controls Inc. 160 McGovern Dr. Cambridge, ON N3H R47
Tel.: 1-888-287-2212 www.conceptcontrols.com

| Calibration System Used | Model | PortaCount® Pro+ 8038 |
|---|---|---|
| PortaCount Bench CC11 | Serial No. | 8038144901 |

**Calibration Data ( Fit Factors )**

| Test Number | Measured Fit Factors *Tolerance: ± 15% of standard* | | |
|---|---|---|---|
| | Testing Standard | Instrument Output | Percent Difference |
| 1 | 2703.3 | 2658.5 | -1.66 |
| 2 | 677.5 | 677.9 | 0.07 |
| 3 | 128.8 | 132.5 | 2.94 |
| 4 | 35.8 | 36.7 | 2.63 |

* *Indicates out of tolerance condition*

*This report certifies that all calibration equipment used in the test is traceable to NIST, and all applies only to the unit identified under equipment above. This report must not be reproduced except in its entirety without the written approval of Concept Controls Inc.*

| Measurement Variable | System ID Number | Date Last Calibrated | Calibration Due Date |
|---|---|---|---|
| DC Voltage | 4156470 | 12-07-20 | 12-07-21 |
| DC Voltage | 7706 | 12-07-20 | 12-07-21 |
| Particle Concentration | 3772181701 | 04-28-20 | 04-28-21 |
| Particle Concentration | 3772181601 | 04-28-20 | 04-28-21 |
| Particle Diameter | 3682801819002 | 04-30-20 | 04-30-21 |

Calibration procedure used: 1000025943 Overall Rating: PASS

Calibrated By

21 Jan., 2021
Calibration Date

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