ATOR LABS

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Subj: Soft masks

The soft masks were visually inspected prior to placement on the ISO head form. There were no visible tears, rips, or gross material deformities in the filter material or the mask covers. Masks are marked as JM1 – JM7.

Testing was completed using ISO 16900 and NIOSH testing methodologies as adapted for use on the ATOR Labs Automated Breathing and Metabolic Simulator.

Performance flow testing was performed using the ABMS set at a flow rate of 85 lpm in accordance with NIOSH TEB- APR – STP – 0003 DETERMINATION OF EXHALATION RESISTANCE TEST, AIR-PURIFYING RESPIRATORS STANDARD TESTING PROCEDURE. Results are reported in mmH2O:

Sample	Maximum Allowable resistance (mmH2O) exhalation	Actual Resistance (mmH2O)	Result
JM1	25	9.07	Pass
JM2	25	7.34	Pass
JM3	25	8.25	Pass
JM4	25	8.05	Pass
JM5	25	8.66	Pass
JM6	25	8.25	Pass
JM7	25	8.25	Pass

Performance flow testing was performed using the ABMS set at an instantaneous flow rate of 85 lpm in accordance with NIOSH TEB- APR – STP – 0007 DETERMINATION OF INHALATION RESISTANCE TEST, AIR-PURIFYING RESPIRATORS STANDARD TESTING PROCEDURE. Results are reported in mmH2O:

Sample	Maximum Allowable resistance (mmH2O) inhalation	Actual Resistance (mmH2O)	Result
JM1	35	2.54	Pass
JM2	35	4.89	Pass
JM3	35	6.11	Pass
JM4	35	4.48	Pass
JM5	35	5.71	Pass

| JM6 | 35 | 5.61 | Pass |
| JM7 | 35 | 6.11 | Pass |

According to NIOSH *"RCT-APR-STP-0064 DETERMINATION OF FACEPIECE CARBON-DIOXIDE AND OXYGEN CONCENTRATION LEVELS OF TIGHT FITTING, POWERED AIR PURIFYING RESPIRATORS WITH THE BLOWER UNIT OFF OR NON-POWERED RESPIRATORS STANDARD TESTING PROCEDURE"*, a device's averaged inhaled carbon dioxide level cannot exceed 2%.

Mask	CO2 Minute Average % :10	Max minute average CO2
JM1	0.966	1.168
JM2	0.792	1.15
JM3	0.718	0.925
JM4	0.556	0.666
JM5	0.555	0.667
JM6	0.505	0.648
JM7	0.559	0.716

Conclusion:

All masks would pass NIOSH/NPPTL testing for form, fit and function.