Assessment of Non-NIOSH Approved Innovative FFRs

NPPTL
National Personal Protective Technology Laboratory

Organization: JJnJJ LLC

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Respirator Model(s): Bal-Blk-A (Balaclava-style Mask), Bnd-Blk-A (Bandana-style Mask), Loop-Blk (Ear Loop-style mask), Filters

Tests: Filtration with NaCl (modified version of STP-0059)

This test result is for a filtering facepiece mask not approved by NIOSH or by any other international standards (e.g., China-KN95, Korea KFN94, UK FFP2 & FFP3, Australia P2, P3, Japan DS/DL2 & DS/DL3). The test conducted for this report is for filtration efficiency and is not equivalent to the test for NIOSH respirator certification per NIOSH test procedure STP-0059.

This assessment provides the filtration performance of an innovative respirator using a modified version of NIOSH test procedure STP-0059. This assessment does not include an evaluation of the fit of these respirators. Use of these innovative respirators in occupational settings would be contingent upon approval by the appropriate regulatory agency.

Filtration Efficiency Results: The minimum and maximum filter efficiencies were as follows: Bal-Blk-A (38.6% and 49.7%), Bnd-Blk-A (35% and 39.3%), Loop-Blk (33.8% and 36.3%), and Filter (20.3% and 21.5%). None of the masks or filters measured more than 95% efficiency. See Table 1.

Figure 1: Masks evaluated. A) Bal-Blk-A, Balaclava-style Mask. B) Bnd-Blk-A, Bandana-style Mask. C) Loop-Blk, Ear Loop-style Mask. D) Filter only as provided for testing.

Figure 2: Laboratory Test Photo (TSI, Inc. 8130 filter tester). A) Bal-Blk-A, Balaclava-style Mask. B) Bnd-Blk-A, Bandana-style Mask. C) Loop-Blk, Ear Loop-style Mask. D) Filter only as provided for testing.

Table 1. Filter Efficiency Evaluation

Respirator Model	Sample #	Flow Rate (Lpm)	Initial Filter Resistance (mmH_2O)	Initial Percent Leakage (%) (1 min)	Final Percent Leakage (%) (5 min)	Percent Leakage Variance (%)	Maximum Percent Leakage (%)	Filter Efficiency (%)
Bal-Blk-A Min: 38.6% Max: 49.7%	**1**	85	2.5	60.000	60.300	-0.300	61.300	**38.700**
	2	85	2.5	46.500	49.400	-2.900	50.300	**49.700**
	3	85	2.9	55.600	59.000	-3.400	59.200	**40.800**
	4	85	3.0	58.600	61.400	-2.800	61.400	**38.600**
	5	85	2.5	51.900	53.500	-1.600	53.500	**46.500**
Bnd-Blk-A Min: 35.0% Max: 39.3%	**1**	85	2.5	63.000	64.700	-1.700	65.000	**35.000**
	2	85	2.5	63.100	63.900	-0.800	64.000	**36.000**
	3	85	2.5	61.700	63.000	-1.300	64.400	**35.600**
	4	85	2.2	59.400	60.900	-1.500	60.900	**39.100**
	5	85	2.5	60.300	60.100	0.200	60.700	**39.300**
Loop-Blk Min: 33.8% Max: 36.3%	**1**	85	3.0	63.000	65.700	-2.700	66.200	**33.800**
	2	85	2.8	63.500	63.900	-0.400	64.000	**36.000**
	3	85	2.9	65.600	65.200	0.400	66.100	**33.900**
	4	85	2.2	62.300	64.800	-2.500	64.800	**35.200**
	5	85	2.9	63.200	63.700	-0.500	63.700	**36.300**
Filters Min: 20.3% Max: 21.5%	**1**	85	2.0	77.600	79.000	-1.400	79.200	**20.800**
	2	85	2.4	76.800	78.600	-1.800	78.600	**21.400**
	3	85	1.6	76.200	78.500	-2.300	78.500	**21.500**
	4	85	1.7	77.000	78.800	-1.800	79.300	**20.700**
	5	85	2.2	79.600	79.700	-0.100	79.700	**20.300**

Notes:

- The test method utilized in this assessment is not the NIOSH standard test procedure that is used for certification of respirators. Respirators assessed to this modified test plan do not necessarily meet the requirements of STP-0059, and therefore cannot be considered equivalent to N95 respirators that were tested to STP-0059.
- **BOLD** filter efficiencies < 95%.