NELSON LABORATORIES

Prepared For:
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LATEX PARTICLE CHALLENGE – FINAL REPORT

Laboratory Number:	499325
Procedure Number:	STP0005 REV 02
Sample Source:	[redacted]
Sample Identification:	Refer to Table 1
Deviations:	None
Statement of Uncertainty:	If applicable, available upon request
Sample Received Date:	27 Oct 2009
Lab Phase Start Date:	17 Nov 2009
Lab Phase Completion Date:	22 Nov 2009
Report Issue Date:	23 Nov 2009

Procedure: The Latex Particle Challenge procedure is performed to determine the particle filtration efficiency of various materials and filtration devices using a challenge of monodispersed polystyrene (latex) microspheres manufactured by Duke Scientific.

The procedure employed the basic particle filtration method described in ASTM F2299, with some exceptions; notably the procedure incorporated a non-neutralized challenge. In real use, particles carry a charge, thus this challenge represents a more natural state. The non-neutralized aerosol is also specified in the FDA guidance document on surgical face masks. The flow rate through the test system was maintained at 1 CFM ± 5%. The control particle concentration passed through the sample was maintained at 10,000-15,000 particles per cubic foot. Filtration efficiencies were calculated by comparison to control values.

Results: A reference control was included to verify the test system was within acceptable control limits. The results are summarized in Table 1.

Adrianne Sandall

Adrianne Sandall, B.S.
Study Director

23 Nov 2009
Study Completion Date

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Latex Particle Challenge

TABLE 1. Results
Sample Identification: flat face mask

SAMPLE NUMBER	AVERAGE SAMPLE COUNTS	AVERAGE CONTROL COUNTS	FILTRATION EFFICIENCY (%)
6	138	12397	98.9
7	99	12336	99.20
8	90	12284	99.26
9	82	12856	99.36
10	91	13241	99.31

SAMPLE AREA TESTED: 91.5 cm^2

PARTICLE SIZE: 0.1 µm (0.097 ± 0.003 µm)

PARTICLE BACKGROUND: <1 particles/min

AVERAGE FILTRATION EFFICIENCY: 99.20%

STANDARD DEVIATION: 0.187