MINISPACER Adapter Particle Size and Dosing Characteristics

The MINISPACER® dual-spray MDI adapter was evaluated for particle size and dosing characteristics using an 8 stage cascade impactor. The MINISPACER was connected to the cascade impactor with ventilator tubing, wye and an endotracheal (ET) tube as they would be used in a ventilator circuit. Air was drawn through the assembly at a flow rate of 28.3 l/min. The aerosol samples exited the ET tube into the cascade impactor and comprised the Total Delivered Dose.

1024

Drug Tested		REF 1024 22mm OD / OD Installed 6 inches upstream of the wye in the inspiratory limb of a 22mm circuit		
		Ventolin HFA**	**Atrovent** HFA**	**QVAR** 80**
Labeled Metered Dose per Actuation (µg from valve)		120	21	100
Particle Size (MMAD) µm ± SD Range of Measurements		2.19 +/- 0.11 2.08 – 2.30	0.92 +/- 0.06 0.88 – 0.99	1.18 +/- 0.11 1.11 – 1.30
Geometric Standard Deviation µm ± SD Range of Measurements		1.53 +/- 0.06 1.49 – 1.60	1.74 +/- 0.03 1.71 – 1.78	1.58 +/- 0.03 1.56 – 1.61
Total Delivered Dose µg ± SD Range of Measurements		27.4+/- 5.4 21.2 – 30.8	2.82 +/- 0.52 2.30 – 3.34	20.6 +/- 3.3 17.2 – 23.7
Total Respirable Dose (< 5.8µm) µg ± SD Range of Measurements		26.6 +/- 5.2 20.8 – 30.0	2.77 +/- 0.46 2.29 – 3.23	20.6 +/- 3.4 17.0 – 23.7
Respirable Fraction (<5.8 µm) % of valve label mean ± SD Range of Measurements		22.2 +/- 4.3 17.3 – 24.8	13.2 +/- 2.2 10.9 – 15.4	20.6 +/- 3.4 17.0 – 23.7
Mass Fraction of Total Delivered Dose	Coarse Particles (> 4.7 µm)	4.18 %	2.90 %	0.34 %
	Fine Particles (1.1 - 4.7 µm)	88.34 %	24.38 %	45.26 %
	Extra-Fine Particles (< 1.1 µm)	7.48 %	72.72 %	54.40 %

Excerpt from PUB0100 rev F