6. Appendices

Appendix A - Comparison table particles, EU GMP Annex 1, FDA Guidance for Industry "Sterile Drug Products Produced by Aseptic Processing" and ISO 14644-1.

EU GMP Annex 1					FDA		ISO 14644-1	
Grade	At rest		In operation		Description	In operation	In operation	
	Maximum permitted number of **particles/m^3** equal to or above		Maximum permitted number of **particles/m^3** equal to or above			Maximum permitted number of **particles/** **m^3** equal to or above	Maximum permitted number of **particles/m^3** equal to or above	
	0,5 µm	5 µm	0,5 µm	5 µm		0,5 µm	ISO Class	0,5 µm
A	3.500	1	3.500	1	Critical	3.520	5	3.520
B	3.500	1	350.000	2.000	Supporting Clean Area	352.000	7	352.000
C	350.000	2.000	3.500.000	20.000	Supporting Clean Area	3.520.000	8	3.520.000
D	3.500.000	20.000	-	-	-	-	9	35.200.000

* - = not defined

Appendix B - Comparison table microorganisms EU GMP Annex 1 and FDA Guidance for Industry "Sterile Drug Products Produced by Aseptic Processing".

EU GMP Annex 1					FDA		
Grade	Recommended limits for microbial contamination in operation (a)				Description (In Operation)	In operation	
	Air sample cfu/m^3	Settle plates (diam. 90 mm) cfu/4 hours (b)	Contact plates (diam. 55 mm) cfu/plate	Glove print 5 fingers cfu/glove		Microbiological Active Air Action Levels Cfu/m^3	Settle plates (diam. 90 mm) cfu/4 hours
A	<1	<1	<1	<1	Critical area (100)	<1	<1
B	10	5	5	5	Supporting Clean Area (10000)	10	5
C	100	50	25	-	Supporting Clean Area (100000)	100	50
D	200	100	50	-	Supporting Clean Area (undefined)	-	-

(a) These are average values.
(b) Individual settle plates may be exposed for less than 4 hours.
* - = not defined

Appendix C - Recommendations for HVAC Systems in Sterile Manufacturing

Grade	Final filter	Air changes per hour	Pressure differential to adjacent room of lower grades	Temp. recommendation
A	H 14	-	-	-
B	H 14	≥ 20	10 - 15 Pa	22 ± 2°C
C	H 13	≥ 20	10 - 15 Pa	22 ± 4°C
D	F 9	≥ 5	10 - 15 Pa	22 ± 4°C