

# Cleanroom Update

- We need a clear and qualitative level of “clean” to determine what to look into
- <http://en.wikipedia.org/wiki/Cleanroom>

### US FED STD 209E cleanroom standards

[edit]

Class	maximum particles/ft <sup>3</sup>					ISO equivalent
	≥0.1 μm	≥0.2 μm	≥0.3 μm	≥0.5 μm	≥5 μm	
1	35	7.5	3	1	0.007	ISO 3
10	350	75	30	10	0.07	ISO 4
100	3,500	750	300	100	0.7	ISO 5
1,000	35,000	7,500	3000	1,000	7	ISO 6
10,000	350,000	75,000	30,000	10,000	70	ISO 7
100,000	3.5 × 10 <sup>6</sup>	750,000	300,000	100,000	700	ISO 8

US FED STD 209E was officially cancelled by the General Services Administration of the US Department of Commerce November 29, 2001,<sup>[8][9]</sup> but is still widely used.

### ISO 14644-1 cleanroom standards

[edit]

Class	maximum particles/m <sup>3</sup>						FED STD 209E equivalent
	≥0.1 μm	≥0.2 μm	≥0.3 μm	≥0.5 μm	≥1 μm	≥5 μm	
ISO 1	10	2.37	1.02	0.35	0.083	0.0029	
ISO 2	100	23.7	10.2	3.5	0.83	0.029	
ISO 3	1,000	237	102	35	8.3	0.29	Class 1
ISO 4	10,000	2,370	1,020	352	83	2.9	Class 10
ISO 5	100,000	23,700	10,200	3,520	832	29	Class 100
ISO 6	1.0 × 10 <sup>6</sup>	237,000	102,000	35,200	8,320	293	Class 1,000
ISO 7	1.0 × 10 <sup>7</sup>	2.37 × 10 <sup>6</sup>	1,020,000	352,000	83,200	2,930	Class 10,000
ISO 8	1.0 × 10 <sup>8</sup>	2.37 × 10 <sup>7</sup>	1.02 × 10 <sup>7</sup>	3,520,000	832,000	29,300	Class 100,000
ISO 9	1.0 × 10 <sup>9</sup>	2.37 × 10 <sup>8</sup>	1.02 × 10 <sup>8</sup>	35,200,000	8,320,000	293,000	Room air

# Vendor

- Many exist that claim to ship worldwide
- Recommendation:
  - <http://www.terrauniversal.com>
- Have worked with UH Manoa before (listed)
- Possible model?
  - <http://www.terrauniversal.com/cleanrooms/valuline-softwall-cleanroom.php>
- We would assemble it here ourselves
  - Good? Bad?
- Comes in various sizes
  - 6 X 6 through 12 X 12