

Did you know about the new ISO standard, 14644-1? Here's some useful information for reference regarding the changes.



ISO 14644-1 (2015)

Rarely does the International Organization for Standardization (ISO) update or change their standards, but when they do, it's wise to keep track of what has changed. In 2015 we saw ISO 14644-1.

The major change we see in ISO 14644-1 is as follows:

"the adoption of a more consistent statistical approach to the selection and number of sampling locations; and the evaluation of the data collected... The new approach allows each location to be treated independently with at least a 95% level of confidence that at least 90% of cleanroom or clean zone areas will comply with the maximum particle concentration limit for the target class of air cleanliness."

When looking at the new standard, it is important to note that there is no longer an equation to calculate the number of particle counts per room. Instead a chart is used to determine such a number. (Click the image on the left to enlarge)

Therefore, all rooms get broken down into hyper-geometric equal area rooms.

Each room is broken down into Hyper-geometric rooms of equal distribution. How many locations are supposed to be taken in your cleanroom?

Another significant change, as seen in the image on the right (click the image to enlarge), is that ISO Class 5 rooms can no longer be certified at the 5.0 μ m channel.

We will continue to keep you updated on any further ISO updates and changes.

ISO/FDIS 14644-1:2015(E)

Table A.1 — Sampling locations related to cleanroom area

Area of cleanroom (m ²) less than or equal to	Minimum number of sampling locations to be tested (N)
2	1
4	2
6	3
8	4
10	5
24	6
28	7
32	8
36	9
52	10
56	11
64	12
68	13
72	14
76	15
104	16
108	17
116	18
148	19
156	20
192	21
232	22
276	23
352	24
436	25
496	26
1 000	27
> 1 000	See Formula (A.1)

NOTE 1 If the considered area falls between two values in the table, the greater of the two should be selected.

NOTE 2 In the case of unidirectional airflow, the area may be considered as the cross section of the moving air perpendicular to the direction of the airflow. In all other cases the area may be considered as the horizontal plan area of the cleanroom or clean zone.

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ISO CLASS N	CLASS LIMITS (#/M ³)					
	0.1 μ m	0.2 μ m	0.3 μ m	0.5 μ m	1.0 μ m	
1.0	10	not enough	not enough	not enough	not enough	tubing losses
1.5	32	not enough	not enough	not enough	not enough	tubing losses
2.0	100	24	10	not enough	not enough	tubing losses
2.5	316	75	32	not enough	not enough	tubing losses
3.0	1,000	237	102	35	not enough	tubing losses
3.5	3,160	748	322	111	not enough	tubing losses
4.0	10,000	2,370	1,020	352	83	tubing losses
4.5	31,600	7,480	3,220	1,110	263	tubing losses
5.0	100,000	23,700	10,200	3,520	832	tubing losses, not enough, use Macro-descriptor
5.5	316,000	74,800	32,200	11,100	2,630	tubing losses
6.0	1,000,000	237,000	102,000	35,200	8,320	293
6.5	3,160,000	748,000	322,000	111,000	26,300	924
7.0	too many	too many	too many	352,000	83,200	2,930
7.5	too many	too many	too many	1,110,000	263,000	9,240
8.0	too many	too many	too many	3,520,000	832,000	29,300
8.5	too many	too many	too many	11,100,000	2,630,000	92,400
9.0	too many	too many	too many	35,200,000	8,320,000	293,000

BLUE - Large V₁, use sequential sampling
 RED - Only valid for Operational mode

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