

Statfree Type i Ergonomic Flooring System Product Cleanliness Testing

DATE: February 23, 2004

FROM: Tim Gjertsen
C.E.R.T.S.

RE: Statfree Type i Ergonomic Flooring System Product Cleanliness Testing

C.E.R.T.S. was contacted to conduct Product Cleanliness Testing of his Statfree Type i Ergonomic Flooring System. We were informed that his product was to be used in a cleanroom environment and needed to be tested to confirm cleanroom class compatibility.

The test was set up using a Class 100 Laminar Flow Bench with an established background of zero 0.5 micron particles (see data sheets for specific samples). After unpacking of the Statfree Type i sample, the technician thoroughly cleaned the product using 70% IPA. The technician performing the test was gowned in Class 100 garb. The technician's gloves were cleaned in between each test performed using 70% IPA.

The tests included were:

1. Test Bench Background – To establish particulate levels within the Laminar Flow Bench (ID #0)
2. Static Test – Statfree Type i sample placed 6" from particle counting probe and in the airflow (ID #1)
3. Brush Test – With product in same location as static test, the technician brushed the surface continuously throughout sample (ID #2)
4. Compression Test – Using the palm of his hand, the technician compressed the product continuously throughout sample (ID #3)
5. Drop Test – The product was continuously dropped from a height of 10" and within the airflow (ID #4)

Test Parameters:

1. Distance between the HEPA filter and the particle counting probe was 22"
2. The sample time for each test conducted was 5 minutes and 5 cubic feet of air
3. The temperature and relative humidity at time of testing was 71.4° and 50%
4. The particle size tested and reported for the test was 0.5 micron

In conclusion, all tests proved that the Statfree Type i Ergonomic Flooring System is compatible for cleanrooms up to and including Class 1,000. Please see data sheets attached for specific results.

If we can be of any further service in this matter please contact us at (714) 259-8833.

Sincerely,

Tim Gjertsen
General Manager

PARTICLE COUNT 209E CALCULATIONS

Staffree Type i ESD Mat

COMPANY: Desco Industries, Inc.
JOB#: 240206

AS BUILT CERTIFICATION	NA
AT REST CERTIFICATION	NA
IN OPERATION CERTIFICATION	NA

TEST SUMMARY

TEST	ROOM #	TEST DATE	AVERAGE PPCF	UCL MAX	UCL TEST	PARTICLE SIZE (micron)	MEETS CLASS
TEST BENCH BACKGROUND	1	02/18/04	0	0	0	0.5	0
STATIC TEST	2	02/18/04	0	10	0	0.5	10
BRUSH TEST	3	02/18/04	231	1,000	315	0.5	1,000
COMPRESSION TEST	4	02/18/04	381	1,000	646	0.5	1,000
DROP TEST	5	02/18/04	262	1,000	536	0.5	1,000

CALCULATIONS

Point	Room #				
	1	2	3	4	5
1	0.0	0.0	139.0	604.0	40.0
2	0.0	0.0	181.0	676.0	61.0
3	0.0	0.0	288.0	140.0	57.0
4	0.0	0.0	191.0	436.0	569.0
5	0.0	0.0	355.0	47.0	585.0

TOTAL COUNTS	0	0	1,154	1,903	1,312
TOTAL POINTS	5	5	5	5	5
MEAN	0.0	0.0	230.8	380.6	262.4
STANDARD DEVIATION	0.0	0.0	88.3	278.1	287.4
STANDARD ERROR	0.0	0.0	39.5	124.4	128.5
UCL FACTOR (UCL)	2.13	2.13	2.13	2.13	2.13
MAXIMUM UCL	0	10	1,000	1,000	1,000
MICRON SIZE	0.50	0.50	0.50	0.50	0.50
CLEANROOM MEETS CRITERIA FOR CLASS	0	10	1,000	1,000	1,000

NO.OF LOCATIONS		2	3	4	5	6	7	8	9	>9
95% UCL FACTOR		6.31	2.92	2.35	2.13	2.02	1.94	1.9	1.86	NA

Tim Gjertsen