

ABSTERGE ACME FILTER INDIA PVT LTD

- **AHU PERFORMANCE TEST(RECOVERY TEST):**

- **PURPOSE:**

To determine the ability of the installation to eliminate airborne particulates.

- **SCOPE:**

Applicable to all clean rooms with terminal **HEPA FILTERS**.

- **RESPONSIBILITY:**

Engg. Dept.

- **DEFINITION:** Recovery performance is evaluated upon the time frame of 5Minutes, the rapid test is the time required to flush of the airborne particle accumulated inside the control zone, during the period when **AHU** is put off.

- **PROCEDURE:**

1.1 AHU performance must be studied for all clean rooms by outside party using calibrated laser based particle counter.

1.2 Following apparatus should be used for AHU performance testing.

1.2.1 A Laser Based 1CFM Particle counter capable of counting and sizing particles in air with size discrimination commensurate with the class of installation under consideration.

1.3 This test should be carried out for Non-unidirectional airflow systems because the recovery performance is a function of air re-circulation ratio, inlet-outlet airflow geometry, thermal conditions and the air distribution characteristics within the controlled zone.

1.4 Recovery test for controlled zone.

1.4.1 Place the particle counter in the controlled zone

1.4.2 Calculate the no. Of locations as per ISO guidelines using formula

$$N_L = \sqrt{\text{Area}}$$

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- 1.4.3 Take two reading when the AHU is ON.
- 1.4.4 Put OFF the AHU starts taking reading after 5 minutes. Note down the time taken to cross the ISO class limits.
- 1.4.5 Switch ON the AHU, start taking reading note down the time taken to regain the initial condition.
- 1.4.6 Time taken to return to its original condition is called **RECOVERY TIME &** the test so performed is called **RECOVERY TEST.**
- 1.4.7 Recovery performance can also be evaluated by using the rate of change of particle concentration, from the slope of particle concentration decay curve for the required cleanliness class as follows:
 - 1.4.7.1 Plot the data of decreasing particle concentration on a rectangular coordinate graph with the time values on the abscissa as linear scales and the concentrations values on the coordinate as logarithmic scales.
 - 1.4.7.2 Estimate the approximate tangent line of the particle concentration decay curve at the time when the particle concentration reaches the target cleanliness class level
 - 1.4.7.3 The slope value of the tangent line represents the recovery performance.
- 1.5.1 Inform about the results to Engineering Department , Quality Assurance department and concerned dept.

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