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Cleanrooms, workstations, and safety cabinets—Methods of test

Method 2: Determination of performance of clean workstations and laminar flow safety cabinets under loaded filter conditions

1 SCOPE. This Standard sets out the method of determining air velocity, pressure drop across the filter, and motor blower current under loaded filter conditions in clean workstations and laminar flow safety cabinets.

2 APPLICATION. This method is used to determine whether the motor blower(s) of a clean workstation or laminar flow safety cabinet has sufficient capacity to maintain the specified air velocity as the filters are loaded to a predetermined increase in system pressure drop.

This test should be performed by the manufacturer at the motor blower-filter combination selection stage as a type test.

3 REFERENCED DOCUMENTS. The following documents are referred to in this Standard:

AS
1042 Direct-acting indicating electrical measuring instruments and their accessories

1386 Cleanrooms and clean workstations
1386.1 Part 1: Principles of clean space control

1807 Cleanrooms, workstations, and safety cabinets—Methods of test
1807.0 Part 0: List of methods and apparatus
1807.1 Method 1: Determination of air velocity and uniformity of air velocity in clean workstations and laminar flow safety cabinets

4 DEFINITIONS. For the purpose of this Standard the definitions given in AS 1386.1 and AS 1807.0 apply.

5 PRINCIPLE. Clean final filters are loaded to simulate a specified increase in system pressure drop. The air velocity and current drawn by the motor blower(s) are then measured.

6 APPARATUS. The following apparatus as specified in AS 1807.0 is required:

(a) Restrictive device.

(b) Freestanding anemometer.

(c) Manometer with suitable range.

(d) Moving-iron ammeter.

7 PROCEDURE. The procedure shall be as follows:

(a) Measure air velocity in accordance with AS 1807.1 and adjust to that specified. Filters shall be in a clean condition for this measurement.

(b) Fit manometer on the upstream side of the HEPA filter(s) and measure the pressure drop across the filter(s).

(c) Measure the electrical current drawn by the motor blower(s).

(d) Install restrictive device downstream of the manometer and in series with the final filter(s) and seal in position, or replace final filter(s) with loaded filter(s).

(e) Measure pressure drop of the loaded system and adjust restrictive device and