

# Australian Standard®

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## Cleanrooms, workstations, and safety cabinets—Methods of test

### Method 5: Determination of work zone integrity

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**1 SCOPE.** This Standard sets out the method for determining the work zone integrity and induced air leakage for laminar flow cleanrooms, workstations, and laminar flow safety cabinets.

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

AS

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

1807.6 Method 6: Determination of integrity of terminally mounted HEPA filter installations

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

**4 PRINCIPLE.** The vicinities of all joints, seals and work apertures relative to the clean work zone are surveyed from within while the exterior is maintained under a high concentration of cold DOP aerosol. An aerosol photometer is used to detect potential aerosol leakage which may be induced into the clean work zone. Aerosol photometer readings in excess of 0.01 percent are an indication of joint or seal leakage, or induction of contaminants into the clean work zone.

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

- (a) Cold DOP aerosol generator and aerosol delivery hose.
- (b) Aerosol photometer.

**6 PROCEDURE.** The procedure shall be as follows:

NOTES:

1. For the purpose of this test, the sensitivity or gain control of the aerosol photometer should be left at the same setting as that used to establish the 100 percent baseline for integrity testing of the laminar flow HEPA filter (see AS 1807.6).
  2. The test operator should avoid inhalation of and exposure to heavy concentration of the test aerosol. It is recommended that a suitable mask or respirator be worn for the duration of this test.
- (a) Set the air pressure on the cold DOP generator to  $140 \pm 5$  kPa.
  - (b) *Cleanrooms, workstations, and laminar flow safety cabinets.* Discharge sufficient cold DOP at the exterior of the joint or seal from a distance of approximately 150 mm to ensure the challenge is maintained at 0.1 percent concentration or more, with the photometer setting as that used to establish the 100 percent base line during integrity testing of the laminar flow HEPA filter (see AS 1807.6), and scan the interior of the joint or seal from within the work zone with the aerosol photometer. The probe inlet shall be maintained approximately 25 mm distant from all surfaces during the scanning procedure (see Figure 1). Scanning shall commence approximately 3 s after the DOP cloud has been directed at the joint.
  - (c) *Laminar flow safety cabinets only.*
    - (i) Discharge sufficient cold DOP at the exterior of the joint or seal from a distance of approximately 150 mm to ensure the challenge is maintained at 0.1 percent concentration or more, with the photometer setting as that used to establish the 100 percent base line during integrity testing of the laminar flow HEP filter (see AS 1807.6), and scan the inside lower edge of the viewing