



DETERMINATION OF THE SURFACE EMISSION CHARACTERISTICS OF A COATING FOR USE IN BUILDING INTERIORS

1 SCOPE

- a) This document describes the method necessary to determine the amount of Total Volatile Organic Compounds (TVOCs) likely to be released from a curing coating.
- b) The test procedure described provides a methodology applicable to laboratory testing that can be repeated in on-site situations in the event of a suspected product failure.
- c) Only test authorities recognised by APAS in accordance with the requirements of APAS document AP-D114 shall be permitted to submit test reports demonstrating conformity to requirements.

NOTE: Alternative procedures to that detailed below for the determination of TVOC emission rates in $\mu\text{g}\cdot\text{m}^{-2}\cdot\text{h}^{-1}$ may be used provided that the sampling occurs over a 24 hour period at the specified times and that the methodology has been determined as appropriate by NATA or an equivalent overseas certification body.

2 PRINCIPAL

- a) The test is carried out on a coated test floor sample of fibrous board.
- b) Air samples are collected using diffusive sampling methods and analysed using solvent desorption.
- c) The TVOC is determined using gas chromatography with flame ionisation detection. Blank samples using glass as the substrate are run in parallel in order to check the veracity of the test results.
- d) Emission rates are determined by sampling on day(s) 1, 3, 7 and 14 commencing 24 hours after application of the final coat.

3 REFERENCED DOCUMENTS

- a) The following APAS document is referenced in this document:
 - i. AP-D114 Rules Governing APAS® Recognition as a Testing Authority

All APAS documents are available for download from the APAS website: <https://vs.csiro.au/apas/documents/>

4 EQUIPMENT

- a) Round aluminium dishes (pie dishes) of approximately 100mm diameter and 0.14 L capacity.
- b) Inert (i.e., VOC-free) sealer (e.g., natural gelatine).
- c) Absorptive carbon filters specific for total VOC (TVOC) capture.
- d) Gas chromatograph with flame ionisation detection.
- e) Float glass panels.

5 METHOD

- a) Apply the full system, according to the manufacturer's instructions and to the recommended wet film build(s), to two 12mm fibre-cement sheets, each being a minimum of 1 m x 1 m in size.

- b) Allow the coating to cure at ambient conditions ($23 \pm 2^\circ\text{C}$) for 24 hours.
- c) At commencement of day(s) 1, 3, 7 and 14; counting from completion of the 24-hour curing period, carry out steps d) to h) below.
- d) Absorptive carbon filters are placed under inverted round aluminium dishes. Position one dish on each of the two test boards. Ensure the dishes are well separated and away from the edges of the boards to avoid any edge effects.
- e) Apply a generous bead of the inert sealant to the entire rims of the aluminium dishes. Gently press each dish into the applied surface to ensure a complete seal.
- f) In the same manner, position one inverted dish over an absorptive carbon filter on a sheet of float glass. Again, apply an inert sealant to the entire rim of the dish and gently push it down onto the glass surface to ensure a complete seal.
- g) Leave the dishes in position for 24 hours, then lift and remove the absorptive filter for testing.
- h) Place each filter immediately into a previously labelled air-tight vial and store below 0°C until analysis.
- i) Using solvent (carbon disulphide) desorption techniques, analyse the extract for TVOC quantified by reference to toluene.

6 REPORTING

- a) Test reports shall be in accordance with clause 10 of APAS document AP-D114.
- b) Report TVOC at each test interval.



TECHNICAL DOCUMENT AP-T002



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7 APPENDIX A

Document History

Status: Current
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Document Version No.:	Date Published:	Summary of Changes:
2	26-08-2021	<ul style="list-style-type: none">Updated APAS website details and minor formatting changes
1	13-11-2020	<ul style="list-style-type: none">Addition of Appendix A Document History and removal of the Editorial Note previously used in technical document versionsUpdated document to the current formatAddition of Referenced Document clauseAddition of "People + Product = Protection" to Footer
0	27-07-2010	<ul style="list-style-type: none">Original document version