



MALAYSIAN STANDARD

MS 1787-15:2022

**Wood-based panels – Part 15:
Determination of formaldehyde emission by
desiccator method
(First revision)**

ICS: 79.060

Descriptors: wood-based panels, determination, formaldehyde, emission, desiccator

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Contents

	Page
Committee representation	ii
Foreword	1
1 Scope	2
2 Normative reference	2
3 Terms and definitions	2
4 Principle	2
5 Apparatus	2
6 Reagents	5
7 Test pieces	5
8 Procedure	6
9 Determination of formaldehyde	7
10 Expression of results	9
11 Test report	9
Bibliography	11

MS 1787-15:2022

Committee representation

The National Standards Committee on Timber, Timber Products and Timber Structures (NSC 22) under whose authority this Malaysian Standard was adopted, comprises representatives from the following organisations:

Construction Industry Development Board Malaysia
Department of Standards Malaysia (Secretariat)
Forest Research Institute Malaysia
Jabatan Kerajaan Tempatan
Jabatan Kerja Raya Malaysia
Malaysian MDF Manufacturers Association
Malaysian Panel-Products Manufacturers' Association
Malaysian Timber Council
Malaysian Timber Industry Board
Malaysian Wood Industries Association
Malaysian Wood Moulding & Joinery Council
Malaysian Wood Preserving Association
Sabah Timber Industries Association
Sarawak Timber Association
Sarawak Timber Industry Development Corporation
Timber Exporters' Association of Malaysia
Universiti Putra Malaysia
Universiti Teknologi MARA

The Technical Committee on Wood-based Panels (NSC 22/TC 3) which supervised the development of this Malaysian Standard consists of representatives from the following organisations:

Besgrade Products Sdn Bhd
Construction Industry Development Board Malaysia
Department of Standards Malaysia (Secretariat)
Dongwha Malaysia Sdn Bhd
Forest Research Institute Malaysia
HeveaBoard Berhad
Jabatan Kerja Raya Malaysia
Jowat Manufacturing (SEA) Sdn Bhd
Malaysian MDF Manufacturers Association
Malaysian Panel-Products Manufacturers' Association
Malaysian Timber Council
Malaysian Timber Industry Board
Perceptive Profile Sdn Bhd
Profina Plywood Sdn Bhd
Robin Resources (Malaysia) Sdn Bhd
Sarawak Timber Industry Development Corporation
Universiti Putra Malaysia
Universiti Sains Malaysia
Universiti Teknologi MARA

The Working Group on Formaldehyde Content (MS 1787-14&15) (NSC 22/TC 3/WG 5) which developed this Malaysian Standard consists of representatives from the following organisations:

Department of Standards Malaysia (Secretariat)
Forest Research Institute Malaysia
Malaysian Timber Industry Board
Universiti Putra Malaysia
Universiti Teknologi MARA

Foreword

This Malaysian Standard was developed by the Working Group on Formaldehyde Content (NSC 22/TC 3/WG 5) under the authority of the National Standards Committee on Timber, Timber Products and Timber Structures (NSC 22).

This first revision of MS 1787-15:2022 cancels and replaces MS 1787: Part 15: 2005, *Wood-based panels – Part 15: Determination of formaldehyde emission by desiccator method*.

The changes in this revision are as follows:

- a) enclosed volume of glass desiccator has been changed;
- b) diameter of stainless steel wire in Figure 1 has been added;
- c) 6.5 has been revised; and
- d) notes have been added in 8.3.

MS 1787 consists of the following parts, under the general title *Wood-based panels*:

- Part 1: *Determination of dimensions of panels*
- Part 2: *Sampling and cutting of test pieces*
- Part 3: *Determination of dimensions of test pieces*
- Part 4: *Determination of moisture content*
- Part 5: *Determination of density*
- Part 6: *Determination of swelling in thickness after immersion in water*
- Part 7: *Determination of dimensional changes associated with changes in relative humidity*
- Part 8: *Determination of moisture resistance under cyclic test conditions*
- Part 9: *Determination of surface soundness*
- Part 10: *Determination of modulus of elasticity in bending and of bending strength*
- Part 11: *Determination of tensile strength perpendicular to the plane of the panel*
- Part 12: *Determination of wet bending strength*
- Part 13: *Determination of screw holding ability*
- Part 14: *Determination of formaldehyde content by perforator method*
- Part 15: *Determination of formaldehyde emission by desiccator method*

This Malaysian Standard will be used in reference to fibreboard, particleboard and oriented strand board, but does not include plywood.

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.

**Wood-based panels – Part 15:
Determination of formaldehyde emission by desiccator method
(First Revision)**

1 Scope

This Malaysian Standard specifies a method for determining the quantity of free formaldehyde emitted from wood-based panels.

2 Normative reference

The following normative reference is indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the normative reference (including any amendments) applies.

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

4 Principle

Emission of formaldehyde is determined by placing test pieces of known surface area in a desiccator at a controlled temperature and measuring the quantity of emitted formaldehyde absorbed in a specified volume of water during 24 h.

5 Apparatus

5.1 Desiccator

Glass desiccator, with an enclosed volume of (12 ± 1) L and fitted with stainless steel wire grid or supporting platform (240 ± 15) mm in diameter of the type as specified in 4.2.

5.2 Wire grid

Wire grid or support, (240 ± 15) mm in diameter, made of stainless steel wire such that the distance between parallel pieces of wire is not less than 15 mm (see Figure 1).

5.3 Glass crystallising dish

Circular glass crystallising dish with (115 ± 1) mm internal diameter and depth of (60 ± 2) mm.

5.4 Sample holder

Sample holder, made of stainless steel wire, to hold the test pieces in the desiccator (see Figure 2).

5.5 Temperature measuring device

The thermocouple or other temperature measuring device, capable of measuring temperature with an accuracy of ± 0.1 °C, placed inside a desiccator of the type specified in 4.1 which is located adjacent to the desiccator(s) containing the test pieces.

5.6 Spectrophotometer

Spectrophotometer, capable of measuring absorbance in the wavelength of 410 nm to 415 nm. The use of cells of pathlength at least 50 mm is recommended and is required for low emitting boards.

5.7 Water bath

Water bath, capable of maintaining a temperature of (65 ± 2) °C.

5.8 Volumetric flasks

Six volumetric flasks, 100 ml (calibrated at 20 °C).

5.9 Volumetric flasks

Two volumetric flasks, 1 000 ml (calibrated at 20 °C).

5.10 Bulb pipettes

Bulb pipettes, 5 ml, 10 ml, 15 ml, 20 ml, 25 ml, 50 ml and 100 ml (calibrated at 20 °C) or suitable auto pipette.

5.11 Microburette

Microburette or auto dispenser.

5.12 Flasks

Flasks, 100 ml (with stoppers).

5.13 Balance

Balance, scale interval of 0.001 g.