



WATERPROOFING MEMBRANES FOR WET AREAS (BUILDINGS)

1 SCOPE

- a) This specification applies to waterproofing membranes for use in wet areas of both residential and non-residential buildings, such as (but not limited to) bathrooms, kitchens, and laundries, to prevent the ingress of water.
- b) This document has been prepared in a manner compliant with the requirements of AS/NZS ISO/IEC 17065.
- c) APAS® is a trademark registered with IP Australia, owned by CSIRO, the Scheme Owner, and protected under applicable laws. Use of the trademark or the Certification Scheme is prohibited unless prior approval in writing is obtained from CSIRO via the APAS Secretariat.

2 BACKGROUND

- a) To obtain a broad overview of the Australian Paint Approval Scheme (APAS), refer to APAS document AP-D001.
- b) To obtain an overview of restricted ingredients in APAS certified products, refer to APAS document AP-D123.
- c) To obtain the current list of APAS participating manufacturers (and suppliers) and resellers, refer to APAS document AP-D152.
- d) To obtain an overview of how to participate in the APAS, refer to APAS document AP-D177.

3 DEFINITIONS AND ACRONYMS

3.1 Definitions

The definition of terms used in this document and in the Certification Scheme can be found in APAS Document AP-D001. In addition, the following definitions shall apply:

- a) **Waterproof:** The property of a material that prevents moisture from penetrating it, rendering it impervious to water.
- b) **Waterproofing Membrane:** A layer of water-tight material, such as a liquid or a sheet, that is laid onto a surface to prevent leaks or damage to the underlying substrate.
- c) **Waterproof Membrane System:** A combination of membrane-associated products such as primers, reinforcement tapes, and sealants used in membrane installation that form a waterproof barrier.
- d) **Wet area:** An area within a building supplied with water from a water supply system.

3.2 Acronyms

The following acronyms appear in this document:

AIW	Australian Institute of Waterproofing
APAS	Australian Paint Approval Scheme
AS	Australian Standard
AS/NZS	Australian Standard / New Zealand Standard
CSIRO	Commonwealth Scientific and Industrial Research Organisation
HIA	Housing Industry Association
MBA	Master Builders Australia

MPDA	Master Painters & Decorators Australia
PDS	Product Data Sheet
SDS	Safety Data Sheet
TDS	Technical Data Sheet
WHS	Workplace Health and Safety

4 DESCRIPTION AND GUIDE FOR USERS

4.1 General Information

- a) This specification applies to waterproofing membranes for use in wet areas of both residential and non-residential buildings, such as (but not limited to) bathrooms, kitchens, and laundries, to prevent the ingress of water.
 - b) The most commonly reported complaints in the building industry have root causes based on water ingress issues. These issues can stem from a number of sources, including, but not limited to:
 - i. Preparation and/or installation inadequate or not to specification i.e., surface was not clean, free from dust, was not appropriately dry / had moisture content.
 - ii. Lack of experience, training, and education.
 - iii. Variability in commonwealth, state and territory licensing and regulatory requirements for waterproofing contractors.
 - iv. Selection and use of inferior or non-compatible materials and products.
 - v. Job Supervision, and
 - vi. Inadequate or no maintenance.
 - c) Currently there are 2 main types of membranes:
 1. **Sheet Membranes:** These can either be:
 - i. **Loose Laid** – where the sheet membrane is not bonded to the substrate and sits on top, or
 - ii. **Bonded** – where the sheet membrane is bonded directly to the substrate.
 2. **Liquid Membranes:** These can either be:
 - i. **Reinforced**¹ – where the liquid applied membrane contains fibre reinforcement in either a random strand mat, woven mesh or chopped strand formation, or
 - ii. **Unreinforced** – where the liquid applied membrane does not contain any fibre reinforcement.
- NOTE**¹: Random strand mat and woven mesh reinforcement are typically in sheet form that are imbedded into the liquid membrane at the time of application. Chopped strand reinforcement is typically added to the liquid membrane at the time of manufacture.
- d) The manufacturer's Technical Data Sheet (TDS) or Product Data Sheet (PDS) should be consulted to confirm that the exposure conditions to which the membrane is to be exposed is within the capabilities of that material.
 - e) Industry consultation with the AIW, HIA, MBA, MPDA and Industry experts was sought in the preparation of this specification.

WATERPROOFING MEMBRANES FOR WET AREAS (BUILDINGS)

4.2 Sub-Classes

- a) This specification incorporates the following sub-classes:
- SMLL**: Sheet membrane – loose laid
 - SMB**: Sheet membrane – bonded
 - LMR**: Liquid membrane – reinforced
 - LMU**: Liquid membrane – unreinforced

4.3 Basis of this Specification

- a) This specification is based on AS/NZS 4858 and relevant areas of the National Construction Code.

5 REFERENCED DOCUMENTS

- a) The following standards are referenced in this document:
- AS 3558.1^A**: Methods of testing plastics and composite materials sanitary plumbing fixtures, Method 1: Determination of water absorption characteristics
 - AS ISO 13007.5^A**: Ceramic tiles – grouts and adhesives, Part 5: Requirements, test methods, evaluation of conformity, classification, and designation of liquid-applied waterproofing membranes for use beneath ceramic tiling bonded with adhesive
 - AS/NZS 4858^A**: Wet area membranes
 - ASTM E96 / E96M-16^A**: Standard Test Methods for Water Vapor Transmission of Materials

These documents may be purchased through the Reference Standards Australia website:
<https://www.standards.org.au/>

- v. **The Therapeutic Goods (Poisons Standard - February 2023) Instrument 2023^A**: Part 2: Controls on Substances, Division 9 - Paint or Tinters

This document is available from the Australian Government Federal Register of Legislation website at: [Therapeutic Goods \(Poisons Standard—February 2023\) Instrument 2023 \(legislation.gov.au\)](https://www.legislation.gov.au/Therapeutic-Goods-(Poisons-Standard-February-2023)-Instrument-2023)

- vi. **National Construction Code (NCC) 2022^A**: Volume 1, Volume 2, and Volume 3 (and any relevant amendments to these Volumes)

These documents can be downloaded from the Australian Building Codes Board website at: [National Construction Code 2022 | NCC \(abcb.gov.au\)](https://www.abcb.gov.au/National-Construction-Code-2022)

NOTE^A: Australian and international standards, the NCC and the Poisons Standard can be subject to changes and variations, therefore it is important to check the regulatory requirements in the state or territory in which a product is to be used

- b) The following APAS documents are referenced in this document:
- AP-D001 Rules Governing How APAS[®] Operates

- AP-D123 Restrictions on Ingredients in Product Formulations
- AP-D152 APAS[®] Participating Manufacturers and Resellers
- AP-D177 Rules Governing How Product Manufacturers participate in APAS[®]
- AP-D181 Volatile Organic Compounds (VOC) Limits
- AP-D192 Rules Governing APAS[®] Product Certification Scheme

All APAS documents are available for download from the APAS website: [APAS Documents & Forms](#)

6 PRODUCT APPROVAL REQUIREMENTS

6.1 General Requirements

- a) The membranes shall comply with this specification and the relevant requirements of APAS document AP-D192 during the life of the approval.

6.2 Technical Requirements

- a) The membranes shall comply with **all** the applicable requirements of clause 7, Table 1 below.
- b) In line with the NCC, all laboratory testing requirements stated in clause 7, Table 1 must be undertaken by an AS ISO/IEC 17025 accredited laboratory with all applicable test methods included in their Scope of Accreditation. A grace period will exist in order for all testing facilities to achieve AS ISO/IEC 17025 accreditation. **This Grace period will end on 31st July 2025.**
- c) AS ISO/IEC 17025 accreditation shall be provided by an organisation accredited by an ILAC Mutual Recognition Arrangement signatory and having a Scope of Accreditation covering AS ISO/IEC 17025 requirements. In Australia, NATA provides AS ISO/IEC 17025 accreditation. A list of international ILAC accreditation bodies can be found on the ISO website.
- d) At the time of publication of this document, the following testing authorities were recognised by APAS for ability to test products to the requirements of AP-S4003, and have either currently or are working towards all testing under their AS ISO/IEC 170205 (NATA) Scope of Accreditation:
- XTec Gen Laboratory**
30-32 Park Avenue
Woodville North SA 5012
Contact: Eric Scardigno
T: 1300 152 298
E: eric.s@xtecgen.com
 - CSIRO Materials Durability & Coatings Lab**
71 Normanby Road
Clayton VIC 3169
(sample deliveries to Gate 3)
Contact: Money Arora
T: +61 3 9545 8774
E: money.arora@csiro.au



WATERPROOFING MEMBRANES FOR WET AREAS (BUILDINGS)

6.3 Health and Safety Requirements

- a) The manufacturer's Safety Data Sheet (SDS), product data sheet (PDS) and/or technical data sheet (TDS) must be studied closely prior to using the product(s) within the waterproofing system and must be complied with during use of the product(s) and system.
- b) As products covered by this specification may contain solvents, the product(s) may be considered flammable and should be stored away from all sources of heat or ignition.
- c) Containers should be resealed immediately after use and good ventilation provided during use to minimise the risk of fire or explosion and the long-term toxic effects of absorption of the vapour into the lungs.
- d) Care should be taken to avoid contact with the skin using protective clothing and barrier cream. All pumping equipment should be adequately earthed. A full-face air fed respirator should be used when spraying.
- e) Products intended for sale in Australia shall comply with all the requirements of the Therapeutic Goods (Poisons Standard - February 2023). Products intended for sale in other countries shall comply with all local WHS and environmental requirements.
- f) The product shall comply with all requirements of clause 6.3 and 6.4 of APAS document AP-D192.



SPECIFICATION AP-S4003



WATERPROOFING MEMBRANES FOR WET AREAS (BUILDINGS)

7 TABLE 1: PERFORMANCE PROPERTIES

PROPERTY REQUIREMENT	TEST METHOD	RESULTS REQUIREMENTS
PERFORMANCE REQUIREMENTS – ALL Sub-classes²		
Water Impermeability	AS ISO 13007.5, Table 1, and Clause A.7	<p>Applicable to <u>LIQUID</u> sub-classes ONLY (LMR and LMU).</p> <ul style="list-style-type: none"> No visual penetration below membrane. ≤ 20 g weight gain. <p>State results.</p>
Moisture Vapour Transmission Rate	AS/NZS 4858 Table 8.1 (a) ASTM E96 / E96M-16 (Desiccant Method)	<p>State results.</p> <p>If results are > 8g / m² / 24 hours, additional testing will be required to establish suitability for use of the membrane over particleboard (refer to Additional Performance Requirement below).</p>
Water Absorption	AS/NZS 4858 Table 8.1 (b) AS 3558.1 NOTE: Sample size modification to be 50 mm x 50 mm by the thickness as used in practice	<p>State results for:</p> <ul style="list-style-type: none"> % mass water absorption for each test piece. Average % mass water absorption of all test pieces.
Cyclic Movement ³	AS/NZS 4858 Table 8.1 (c) and Appendix B	<p>Specify if membrane has been tested as Class I, II or III.</p> <p>State results:</p> <ul style="list-style-type: none"> Noting the onset of crazing, surface tears and membrane rupture. If rupture occurs in line with clause B4 of Appendix B, report the number of cycles to failure. If failure does not occur after 50 cycles, report with type of surface defect induced (if any) and the number of cycles at which time the defect occurred.
Durability <ul style="list-style-type: none"> - Water immersion - Bleach immersion - Detergent immersion - Heat ageing 	AS/NZS 4858 Table 8.1 (d) and Appendix A and Table A1	<p>State results for controls and each exposure condition for:</p> <ul style="list-style-type: none"> tensile strength elongation at break <p>Noting any significant changes in appearance i.e., blistering etc, for each exposure condition if or where they exist.</p>
ADDITIONAL PERFORMANCE REQUIREMENTS – Sub-classes LMR and LMU ONLY		
Volatile Organic Content (VOC)	APAS AP-D181	<p>Solvent-borne: ≤ 200 g/L</p> <p>Water-borne: ≤ 70 g/L</p> <p>Report results.</p>



SPECIFICATION AP-S4003



WATERPROOFING MEMBRANES FOR WET AREAS (BUILDINGS)

7 TABLE 1: PERFORMANCE PROPERTIES (Cont..)

PROPERTY REQUIREMENT	TEST METHOD	RESULTS REQUIREMENTS
ADDITIONAL PERFORMANCE REQUIREMENTS – Test required only for membranes with Moisture Vapour Transmission Rates > 8g / m² / 24 hours		
Suitability for use over particleboard	AS/NZS 4858 Table 8.1 (e) and Appendix C	State all test results for: <ul style="list-style-type: none">• Each of the 6 test specimen locations• Each of the 2 control measurements

NOTE²: If reinforcement is part of the system i.e., sub-class LMR, then it is to be included as part of the testing regime.

NOTE³: RMUs and alternative testing authorities that are compliant to APAS document AP-D114, and who are seeking to provide test results for Cyclic Movement Property Requirements must provide evidence to the prescriptive test method used to prove the outcome of the testing. This prescriptive test method will be lab specific and must be reviewed and approved for compliance by the APAS EO prior to the supply of test results for a product seeking certification.

APAS reserves the right for final decision regarding the suitability of a test method being fit-for-purpose. Agencies that have already been assessed for such test methods are stated in clause 6.2 d) of this specification.



SPECIFICATION AP-S4003



WATERPROOFING MEMBRANES FOR WET AREAS (BUILDINGS)

APPENDIX A

Document History

Status: Current
Version: 0
Date Published: 22-05-2023

Document Version No.:	Date Published:	Summary of Changes:
0	22-05-2023	<ul style="list-style-type: none">Initial specification version