



TECHNICAL BULLETIN – TB172

GREEN SLAB CONCRETE – MOISTURE SUPPRESSION

Date: 31st January 2025

INTRODUCTION & SCOPE

When a new concrete slab is laid, the residual water in the concrete, called 'construction moisture', can create problems for subsequent floor coverings. This loss of residual moisture allows the concrete to achieve an acceptable degree of moisture content after air drying at an approximate rate of one month per 25mm thickness per side exposed. So, it can take three to six months before the concrete is dry enough to apply levelling compounds, waterproofing membranes and impervious floor coverings such as vinyl.

This bulletin describes moisture suppression systems for green slabs based around ARDEX WPM300 Hydrex, ARDEX WPM368 or ARDEX PU30.

LIMITATIONS

This system is only applicable to concrete that:

- ❶ Is surface-hard before the installation of the moisture barrier.
- ❷ Has reducing moisture content when measured over several days*.
- ❸ Has moisture levels less than 90% RH when measured to AS1884-2021 clause A3.1.2 using ASTM F2170 📏.
- ❹ Is not subject to permanent moisture such as rising damp and is not below grade.
- ❺ Where ARDEX WPM300 is used as a curing compound, it must be at least 24 hours old, and the surface hardened to walk on. However, it should be noted that while this is the minimum time for application, the preferred wait time when used as a moisture suppressant is 4-7 days to allow for initial shrinkage and cracking to occur

* - It should be noted that it may be difficult to determine if the moisture is falling into the required range in very fresh concrete, in which case the full two-coat system is recommended.

📏 The alternative moisture method in AS1884-2021 under clause A3.1.3, which is based on ASTM F2420, is no longer valid. ASTM has withdrawn this method.

SYSTEMS

The floor must be mechanically prepared to remove any laitance, curing compounds, or other residues left over from the concrete pour. The concrete surface must be porous and not have a steel trowel or burnished finish.

There are two options for this installation:



Method 1

- 1) A coat of ARDEX WPM300 is applied to the concrete at a rate of 3.0 m²/litre. While the ARDEX WPM300 is still wet, clean dry sand (~0.3-0.5mm) is spread over the surface. The coverage rate is around 700 grams/m², and 90% coverage must be achieved.
- 2) The coated surface is allowed to stand for at least 12-16 hours, and the excess sand is broomed and vacuumed off the surface.
- 3) A levelling compound is applied over the surface to a minimum thickness of 3mm. Choices of levelling compound include ARDEX K15, ARDEX K55, ARDEX K125, ARDEX K275, ARDEX K80, ARDEX K301, ARDEX Arditex NA or ARDEX K65.

Method 2

- 1) A coat of ARDEX WPM300 is applied to the concrete at a rate of 3.0 m²/litre and allowed to cure for 16-18 hours.
- 2) The ARDEX WPM300 is primed with ARDEX P82 primer applied with a squeegee/roller to achieve the thinnest pink film. The primer is allowed to cure for a minimum of 3 hours and a maximum of 24 hours before installing the levelling compound.
- 3) A levelling coat of 3mm of the following levelling compounds is applied to the surface.
 - a) ARDEX K15 mixed with ARDEX E25 (1 litre E25 and 4.5 litres water per 20kg bag of K15M).
 - b) ARDEX K55
 - c) ARDEX K12 mixed with E25 (1.25 litres of E25 and 3.75 litres water per 20kg bag of K12N).

Method 3

- 1) A coat of ARDEX WPM368 is applied to the concrete at a rate of 3.0 m²/litre.
- 2) The coated surface is allowed to stand for a minimum of 12-16 hours. Note that high humidity and moisture can delay the drying of this material.
- 4) A levelling compound is then applied over the surface at a minimum thickness of 3mm. Choices of levelling compound include ARDEX K15, ARDEX K55, ARDEX K125, ARDEX K275, ARDEX K80, ARDEX K301, ARDEX Arditex NA or ARDEX K65.

Method 4 (90% RH and falling)

- 1) A coat of ARDEX PU30 is applied to the concrete at a rate of 100-150gm/m² (200 ml/m²).
- 2) The coat is allowed to dry sufficiently to walk on, but within 24 hours, apply a priming coat of ARDEX P9 primer at 6-10m²/litre.
- 3) A smoothing cement coat is then applied over the surface to a minimum thickness of 3mm. Choices of smoothing cement include ARDEX K15, ARDEX K55, ARDEX K125, ARDEX K275, ARDEX K80, ARDEX K301, ARDEX Arditex NA or ARDEX K65.



Method 5 (98% RH and falling)

- 1) A coat of ARDEX PU30 is applied to the concrete at a rate of 100-150gm/m² (200 ml/m²).
- 2) The coat is allowed to dry sufficiently to walk on; a second coat is applied at 90 degrees to the first at a rate of 100-150gm/m².
- 3) The coat is allowed to dry sufficiently to walk on, but within 24 hours, apply a priming coat of ARDEX P9 primer at 6-10m²/litre.
- 4) A levelling compound is then applied over the surface to a minimum thickness of 3mm. Choices of smoothing cement include ARDEX K15, ARDEX K55, ARDEX K125, ARDEX K275, ARDEX K80, ARDEX K301, ARDEX Arditex NA or ARDEX K65.

4) Method 6 (98% RH and falling)

- 1) A coat of ARDEX PU30 is applied to the concrete at a rate of 100-150gm/m² (200 ml/m²).
- 2) The coat is allowed to dry sufficiently to walk on; a second coat is applied at 90 degrees to the first at a rate of 100-150gm/m² (200 ml/m²).
- 1) A third coat is applied, and then, whilst the ARDEX PU30 is still wet, clean, dry sand (~0.3-0.5mm) is spread over the surface. The coverage rate is 700 gms/m² and 90% coverage must be achieved.
- 2) A smoothing cement coat is then applied over the surface to a minimum thickness of 3mm. Choices of smoothing cement include ARDEX K15, ARDEX K55, ARDEX K125, ARDEX K275, ARDEX K80, ARDEX K301, ARDEX Arditex NA or ARDEX K65

NOTE: This system does not substitute for the ARDEX Moisture Barrier system described in Technical Bulletin TB006 or TB192.

IMPORTANT

This Technical Bulletin provides guideline information only and is not intended to be interpreted as a general specification for the application/installation of the products described. Since each project potentially differs in exposure/condition, specific recommendations may vary from the information contained herein. For recommendations for specific applications/installations, contact your nearest ARDEX Australia Office.

DISCLAIMER

The information presented in this Technical Bulletin is to the best of our knowledge true and accurate. No warranty is implied or given as to its completeness or accuracy in describing the performance or suitability of a product for a particular application. Users are asked to check that the literature in their possession is the latest issue.

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