

## TECHNICAL BULLETIN – TB172

### GREEN SLAB CONCRETE, CONSTRUCTION MOISTURE SUPPRESSION SYSTEM USING ARDEX WPM300, WPM368 AND PU30

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#### INTRODUCTION & SCOPE

In situations where a new concrete slab has been laid, the residual water in the concrete, called 'construction moisture' can create problems for subsequent floor coverings. This loss of residual moisture is such that the concrete achieves an acceptable degree of moisture content after air drying at an approximate rate of one month per 25mm thickness per side exposed, so anywhere from three to six months may elapse before the concrete is dry enough for *levelling cements, waterproofing membranes, and impervious floor coverings such as resilient floor finishes* to be laid.

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

#### LIMITATIONS

This system is only applicable to concrete that:

- ① Is surface-hard prior to the installation of the moisture barrier.
- ① Has reducing moisture content when measured over several days\*.
- ① Has moisture levels less than 90% RH when measured to AS1884-2012 clause A3.1.2 using ASTM F2170 <sup>1</sup>.
- ① Is not subject to permanent moisture such as rising damp, and is not below grade.
- ① Where 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 whilst 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 in very fresh concrete it may be difficult to determine if the moisture is falling into the required range, in which case the full two coat system is recommended.

<sup>1</sup> - The alternative moisture method in AS1884-2012 under clause A3.1.3, which is based on ASTM F2420 is no longer valid. ASTM have withdrawn this method.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 steel trowel or burnished finish.

There are two options for this installation:

##### Method 1

- 1) A coat of WPM300 is applied to the concrete at a rate of 2.0m<sup>2</sup>/litre and whilst the WPM300 is still wet, clean dry sand (~0.3-0.5mm) is spread over the surface. The coverage rate is around 700gms/m<sup>2</sup> and 90% coverage must be achieved.
- 2) The coated surface is allowed to stand for a minimum of 12-16 hours and the excess sand is broomed and vacuumed off the surface.



- 3) A smoothing cement coat is then applied over the surface to a minimum thickness of 3mm. Choices of smoothing cement include ARDEX K15M, K55, K120, K220, K10R8, K12N, K250, K80 and K301 or Arditex NA.

#### **Method 2**

- 1) A coat of WPM300 is applied to the concrete at a rate of 2.5m<sup>2</sup>/litre and allowed to cure for 16-18 hours.
- 2) The 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 the installation of the smoothing cement.
- 3) A smoothing coat 3mm of the following smoothing cements is applied to the surface.
  - a) ARDEX K15M mixed with ARDEX E25 (1 litre E25 and 4.5 litres water per 20kg bag of K15M).
  - b) ARDEX A55
  - c) ARDEX K12N mixed with E25 (1.25 litres of E25 and 3.75 litres water per 20kg bag of K12N).

#### **Method 3**

- 1) A coat of WPM368 is applied to the concrete at a rate of 2-2.5m<sup>2</sup>/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.
- 3) A smoothing cement coat is then applied over the surface to a minimum thickness of 3mm. Choices of smoothing cement include Ardex K15M, K55, K12N, K250, K10R8, K220, K120 or Arditex NA.

#### **Method 4 (90% RH and falling)**

- 1) A coat of PU30 is applied to the concrete at a rate of 100-150gm/m<sup>2</sup>.
- 2) The coat is allowed to dry sufficiently to walk on, but within 24 hours, apply a priming coat of ARDEX P9 primer at 6-10m<sup>2</sup>/litre.
- 3) A smoothing cement coat is then applied over the surface to a minimum thickness of 3mm. Choices of smoothing cement include K120, K220, K10R8, K12N, K250, and K301 or Arditex NA.

#### **Method 5 (98% RH and falling)**

- 1) A coat of PU30 is applied to the concrete at a rate of 100-150gm/m<sup>2</sup>.
- 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/m<sup>2</sup>.
- 3) The coat is allowed to dry sufficiently to walk on, but within 24 hours, apply a priming coat of ARDEX P9 primer at 6-10m<sup>2</sup>/litre.
- 4) A smoothing cement coat is then applied over the surface to a minimum thickness of 3mm. Choices of smoothing cement include K120, K220, K10R8, K12N, K250, and K301 or Arditex NA.

#### **Method 6 (98% RH and falling)**

- 1) A coat of PU30 is applied to the concrete at a rate of 100-150gm/m<sup>2</sup>.
- 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/m<sup>2</sup>.

- 1) A third coat is applied and then, whilst the PU30 is still wet, clean dry sand (~0.3-0.5mm) is spread over the surface. The coverage rate is around 700gms/m<sup>2</sup> 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 K120, K220, K10R8, K12N, K250, and K301 or Arditex NA.

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.

**REASON FOR REVISION**

Deletion of K009. Addition of PU30 systems and K120, K220 and K10R8.

**REVIEW PERIOD**

36 months from issue

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