ARDEX X 90 OUTDOOR™

MicroteC3 Rapid-Set, Flexible Tile and Stone Mortar

Maximum weatherproof protection against the harshest elements for outdoor tile and stone installations!

ARDEX MicroteC3 is the new level in mortar standards:
- Highest levels of freeze thaw resistance - Tested at 150+ freeze thaw cycles (7 times greater than the ANSI 118.15 standard requirement of 20 cycles)
- Maximum efflorescence resistance
- Outstanding rapid-setting properties, even at temperatures as low as 40°F / 5°C
- Heavy and driving rain-resistant after only 2 hours

Ideal for tiling on concrete balconies, patios, swimming pools and high-load commercial areas
- Traffic and grout after just 2 hours
- Thin to medium bed installations up to 5/8” (15 mm)
- Extended open time up to 30 minutes
- Excellent bond strength for setting porcelain, glass, quarry, ceramic and most natural stone tiles*
- Very creamy, easy-to-apply consistency
- Extra long pot life of 60 minutes
- For exterior or interior floors and walls

Available in gray and white
ARDEX X 90 OUTDOOR™ MicroteC3 Rapid-Set, Flexible Tile and Stone Mortar

Description and Usage
ARDEX X 90 OUTDOOR™ MicroteC3 Rapid-Set, Flexible Tile and Stone Mortar is a revolutionary innovation in mortar technology that is formulated with specialty, high-performance ARDEX cements, polymers and microfibers to deliver maximum protection against the harshest weather conditions and provide the highest levels of efflorescence resistance for exterior tile and stone applications. ARDEX X 90 OUTDOOR can be installed over substrates with temperatures as low as 40˚F (5˚C) and can withstand driving rains or be grouted in only 2 hours.

Substrate Preparation
ARDEX X 90 OUTDOOR adheres to both dry and damp substrates (no standing water) that are structurally sound, solid and free from oil, grease, wax, dirt, asphalt, curing compounds, sealers, releasing agents, gypsum patching compounds, dust, latex, paint and any contaminant that can act as a bond breaker. Plywood substrates must be dry, APA-rated, Type 1 exterior-grade plywood. Wallboards must be dry, sound and solidly anchored to structural components in the wall. The plane of wall surfaces must be plumb and true. Refer to ANSI A108.01 “General Requirements: Subsurface and Preparation by Other Trades,” the most current version of the Tile Council of North America’s “Handbook for Ceramic Tile Installation” and the Terrazzo Tile & Marble Association of Canada’s guidelines for detailed information on surface preparation and guidelines for substrate construction. Floor surfaces must have minimal variation in the plane or slope as outlined by the Tile Council of North America and the Terrazzo Tile & Marble Association of Canada.

Should pre-leveling or subfloor repair be required, use one of the materials listed below, as appropriate. Observe the instructions and dry times in the ARDEX technical data sheets.

Suitable uses for ARDEX X 90 OUTDOOR

<table>
<thead>
<tr>
<th>Substrates</th>
<th>Interior or Exterior</th>
<th>Horizontal or Vertical</th>
<th>Tile Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete and other cementitious surfaces, existing tiles, metal, glass, in-floor heating systems</td>
<td>Interior and exterior</td>
<td>Horizontal and vertical</td>
<td>Porcelain, quarry, ceramic, glass, most natural stone tiles and approved resin-backed tiles</td>
</tr>
<tr>
<td>Exterior-grade plywood</td>
<td>Interior</td>
<td>Horizontal</td>
<td>Porcelain, quarry, ceramic, glass, most natural stone tiles and approved resin-backed tiles</td>
</tr>
<tr>
<td>Gypsum wallboard and properly primed plaster</td>
<td>Interior</td>
<td>Vertical</td>
<td>Porcelain, quarry, ceramic, glass, most natural stone tiles and approved resin-backed tiles</td>
</tr>
</tbody>
</table>

Per ANSI A 108 AN-3.7, expansion joints must be provided over existing moving joints and moving cracks and where substrate materials change composition or direction.

Prime (interior, dry applications only): Prime with ARDEX P 51™ Primer diluted 1:3 with water, and allow this course to dry thoroughly (min. 3 hours, max. 24 hours) before proceeding with the tile installation.

Prime (interior, dry applications only): Prime with ARDEX P 51™ Primer diluted 1:3 with water, and allow this course to dry thoroughly (min. 3 hours, max. 24 hours) before proceeding with the tile installation.

Armed with the knowledge about ARDEX X 90 OUTDOOR™, you are now prepared to tackle any exterior tile and stone projects with confidence!
**ARDEX P 82**: For interior epoxy coatings in dry areas, only, prime with ARDEX P 82™ Ultra Prime in accordance with the technical data sheet.

For more information, refer to the ARDEX Substrate Preparation Technical Data Sheet at www.ardexamericas.com.

**Recommended Tools**
Margin trowel, mixing container, ARDEX T-2 Ring Mixing Paddle, 1/2" (12 mm) heavy-duty drill (min. 650 rpm) and appropriate notched trowel.

**Mixing and Application**
For one 40 lb. (18 kg) bag of ARDEX X 90 OUTDOOR, use 5.75 - 6.75 quarts (5.4 - 6.4 L) of clean water. To mix smaller quantities by hand, use 2.5 parts powder to 1 part water by volume.

Pour water in the mixing container first, and then add the ARDEX X 90 OUTDOOR while mixing for 2 - 3 minutes. For best results, mix with an ARDEX T-2 Ring Mixing Paddle and 1/2" heavy-duty drill (12 mm, min. 650 rpm).

If mixing small batches by hand, use a margin trowel and mix vigorously. Just prior to application on the substrate, the mixture should be stirred again to ensure a creamy, smooth, lump-free consistency.

The pot life of ARDEX X 90 OUTDOOR is approximately 1 hour at 70°F (21°C). Jobsite conditions and temperature may affect pot life. If the material begins to harden within this time, remix with a drill and mixing paddle. **DO NOT ADD MORE WATER!**

Installation should proceed in accordance with ANSI A 108.5. After mixing, apply the mortar to the substrate with the flat side of a notched trowel (keying in) to obtain a solid mechanical bond. Next, comb the mortar on the surface with the notched side of a trowel of sufficient depth to ensure that the tile or stone is covered uniformly over the entire surface. The type and size of the tile or stone will dictate the size of the notched trowel to be used to achieve proper transfer of the mortar and proper coverage. Follow the recommendations of the Tile Council of North America and the Terrazzo Tile & Marble Association of Canada for proper transfer of ARDEX X 90 OUTDOOR from the substrate to the tile or stone.

Apply to an area no greater than that which can be covered with tiles while the mortar remains plastic (approx. 30 minutes). Do not set tile or stone into skinned over mortar. The position of the tile or stone may be adjusted for up to 15 - 20 minutes after installation.

**GROUTING**
Wall and floor tiles can be grouted after 2 hours in accordance with ANSI A 108.10 using ARDEX FL™ Rapid Set, Flexible, Sanded Grout, ARDEX FH™ Sanded Floor and Wall Grout, ARDEX FG-C™ Unsanded Floor and Wall Grout or ARDEX WA™ High Performance, 100% Solids Epoxy Grout and Adhesive, as appropriate. For soft joints, ARDEX recommends ARDEX SX™ 100% Silicone Sealant for Tile and Stone Applications.

**Notes**
FOR PROFESSIONAL USE ONLY.

When setting certain types of tile or stone, it may be necessary to trowel a layer of mortar on the back of each tile or stone prior to placement on the combed mortar bed in order to achieve the required mortar-to-tile contact. Press each tile firmly into the freshly combed mortar to ensure maximum mortar contact with the tiles.

* For setting moisture-sensitive natural stone or agglomerate tiles, use ARDEX X 32™ MICROTEC® Fiber Reinforced Rapid Setting Thin to Thick Bed Mortar and for interior, dry applications only ARDEX S 28™ MICROTEC® Rapid Set, Rapid Dry, Super-Format Tile and Uncoupling Membrane Mortar or ARDEX N 23™ MICROTEC® Rapid Set Natural Stone.
* For cases requiring waterproofing, please refer to the ARDEX 8+9 Rapid Waterproofing and Crack Isolation Compound technical data sheet and the ARDEX 8+9 “5 Step Application Guide” or ARDEX SK 175™ Waterproofing Membrane and Vapor Retarder for Tile & Stone Installations technical data sheet.

For setting glass tiles in swimming pools and other submerged areas, use ARDEX WA. For setting glass tiles at the water line of a swimming pool, use either ARDEX WA or ARDEX X 77 ™ MICROTEC® Fiber Reinforced Tile and Stone Mortar White mixed with ARDEX E 90.

Please contact the ARDEX Technical Service Department before proceeding with any of the above demanding applications.

ARDEX X 90 OUTDOOR is intended for use at material and surface temperatures between 40° and 85°F (5° - 29°C). Do not install below 40°F (5°C) surface and air temperatures. For warm weather installation instructions, please contact the ARDEX Technical Service Department.

Never mix with cement or non-ARDEX additives. Observe the basic rules of tile work.

ARDEX recommends the installation of test areas to confirm the suitability of the product for its intended use. Dispose of packaging and residue in accordance with federal, state and local waste disposal regulations. Do not flush material down drains.

**Precautions**
Carefully read and follow all precautions and warnings on the product label. For complete safety information, please refer to the Safety Data Sheet (SDS) available at www.ardexamericas.com.
Technical Data According To ARDEX Quality Standards

All data based on a mixing ratio of 2.5 parts powder to 1 part water by volume at 70°F (21°C). Physical properties are typical values and not specifications.

Mixing Ratio: 5.75 - 6.75 quarts (5.4 - 6.4 L)
   of water per 40 lbs. (18 kg) bag
   For smaller batches, use 2.5 parts powder to 1 part water by volume.

Approximate Coverage per 40 lbs. (18 kg) bag:
- 1/4” x 1/4” x 1/4”
  (6 mm x 6 mm x 6 mm)
  Sq. Notch Trowel
  95 sq. ft. (8.8 sq. m)
- 1/4” x 3/8” x 1/4”
  (6 mm x 9 mm x 6 mm)
  Sq. Notch Trowel
  75 sq. ft. (7 sq. m)
- 1/2” x 1/2” x 1/2”
  (12 mm x 12 mm x 12 mm)
  Sq. Notch Trowel
  55 sq. ft. (5 sq. m)

Open time: Up to 30 minutes
Pot Life: Approx. 1 hour
Adjustment Time: Approx. 15 - 20 minutes
Time to Grout: 2 hours
Color: Gray, White
VOC: 0
Packaging: 40 lb. (18 kg) bag
Storage: Store in a cool, dry area.
        Do not leave bags exposed to sun.
Shelf life: 1 year, if unopened
Warranty: ARDEX L.P. Standard Limited Warranty applies. Also eligible for the ARDEX SystemOne™ Warranty when used in conjunction with ARDEX grouts and ARDEX caulks.

Made in the USA.
© 2019 ARDEX L.P. All rights reserved.
Content updated 06-17-2019. Published 07-01-2019.
Supersedes all previous versions. Check www.ardexamericas.com for most recent version and for technical updates, which may supersede the information herein.
## ISO 13007 Classification

<table>
<thead>
<tr>
<th>Classification Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2 (cementitious, improved adhesion)</td>
</tr>
<tr>
<td>T (vertical slip resistance)</td>
</tr>
<tr>
<td>E (extended open time)</td>
</tr>
<tr>
<td>F (fast setting)</td>
</tr>
<tr>
<td>S1 (deformation)</td>
</tr>
</tbody>
</table>

### 28-Day Test

<table>
<thead>
<tr>
<th>Test Method</th>
<th>ANSI Specification</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious ceramic (porcelain) mosaics shear strength</td>
<td>ANSI A 118.15 F</td>
<td>≥50 psi (0.35 MPa / 3.5 kg/cm²)</td>
</tr>
<tr>
<td>Impervious ceramic (porcelain) mosaics shear strength</td>
<td>ANSI A 118.15</td>
<td>&gt;400 psi (2.76 MPa / 28 kg/cm²)</td>
</tr>
<tr>
<td>Impervious ceramic (porcelain) mosaics shear strength with freeze-thaw cycling</td>
<td>ANSI A 118.15</td>
<td>&gt;250 psi (1.73 MPa / 17.5 kg/cm²)</td>
</tr>
<tr>
<td>Impervious ceramic (porcelain) mosaics with heat aging</td>
<td>ANSI A 118.15</td>
<td>&gt;400 psi (2.76 MPa / 28 kg/cm²)</td>
</tr>
<tr>
<td>Glazed wall tile shear strength</td>
<td>ANSI A 118.15</td>
<td>&gt;450 psi (3.11 MPa / 31.5 kg/cm²)</td>
</tr>
<tr>
<td>Quarry tile shear strength</td>
<td>ANSI A 118.15</td>
<td>&gt;150 psi (1 MPa / 10.5 kg/cm²)</td>
</tr>
<tr>
<td>Quarry tile to plywood shear strength</td>
<td>ANSI A 118.11</td>
<td>&gt;150 psi (1 MPa / 10.5 kg/cm²)</td>
</tr>
</tbody>
</table>

### 7-Day Test

<table>
<thead>
<tr>
<th>Test Method</th>
<th>ANSI Specification</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious ceramic (porcelain) mosaics shear strength with water immersion</td>
<td>ANSI A 118.15</td>
<td>&gt;200 psi (1.38 MPa / 14 kg/cm²)</td>
</tr>
</tbody>
</table>