



ARDEX X 90 OUTDOOR™

MicrotecC3 Rapid-Set, Flexible Tile and Stone Mortar

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



ARDEX MicrotecC3 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



systemONE™
warranty

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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

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

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.

Priming / Treating the Substrate

Highly absorbent substrates, such as plaster, and non-porous substrates, such as existing tiles, must be primed or treated as detailed below before proceeding with the tile installation.

Highly Absorbent Substrates

Scratch Coat: Apply a scratch coat of ARDEX X 90 OUTDOOR. Allow the scratch coat to cure 2 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.

Existing Tiles (Tile-over-Tile)

Scratch Coat: Mechanically abrade the tiles to create a bonding profile. Apply a scratch coat of ARDEX X 90 OUTDOOR, and let the scratch coat cure 2 hours before proceeding with the new tile installation.

ARDEX 8+9: Apply a coat of ARDEX 8+9™ Rapid Waterproofing and Crack Isolation Compound, which must dry 1 - 2 hours before proceeding with the tile installation.

ARDEX E 90: Mix ARDEX X 90 OUTDOOR with ARDEX E 90™ Mortar Admix in accordance with the technical data sheet, and install directly over the existing tile surface.

Metal, Glass and Certain Other Non-Porous Surfaces

ARDEX 8+9: For all non-porous surfaces except epoxy coatings, apply a coat of ARDEX 8+9™ Rapid Waterproofing and Crack Isolation Compound, which must dry 1 - 2 hours before proceeding with the tile installation.

Product	Substrate	Interior or Exterior
ARDEX A 38™ Rapid Set Screed or ARDEX A 38 MIX™ Rapid Set, Premixed Screed	Concrete	Interior or Exterior
	Wood	Interior
ARDEX AM 100™ Rapid Set Pre-Tile Smoothing and Ramping Mortar	Concrete	Interior or Exterior
ARDEX Liquid BackerBoard® Self-Leveling Underlayment for Interior Wood and Concrete Subfloors	Concrete	Interior
	Wood	Interior
ARDEX TL 1000™ Self-Leveling Underlayment	Concrete	Interior
ARDEX SKM® Skimcoat Patch and Finishing Underlayment	Concrete	Interior
	Wood	Interior

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.

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Supersedes all previous versions. Check
www.ardexamericas.com for most recent version
and for technical updates, which may supersede
the information herein.

IMPORTANT TECHNICAL UPDATES

Technical update effective June 28, 2018:
ARDEX Tile Mortar Thicknesses over Membranes

[CLICK HERE](#)

Technical update effective June 23, 2017:
ARDEX Tile Setting Materials over Membranes in
Exterior Applications

[CLICK HERE](#)

Technical update effective September 18, 2017:
Recommendations for Resin-Backed Tiles

[CLICK HERE](#)

ISO 13007 Classification	Classification Requirement
C2 (cementitious, improved adhesion)	≥ 145 psi (1 MPa / 10.2 kg/cm ²) after standard aging, heat aging, water immersion and freeze/thaw cycles
T (vertical slip resistance)	≤ 0.019" (0.5 mm)
E (extended open time)	≥ 72.5 psi (0.5 MPa / 5 kg/cm ²) after 20 - 30 minutes
F (fast setting)	≥ 72.5 psi (0.5 MPa / 5 kg/cm ²) at 6 hours
S1 (deformation)	S1 (deformation) Deform ≥ 0.1" (2.5mm) but < 0.2" (5mm)

28-Day Test	Test Method	ANSI Specification	Test Results
Impervious ceramic (porcelain) mosaics shear strength	ANSI A 118.15 F	≥50 psi (0.35 MPa / 3.5 kg/cm ²)	Pass
Impervious ceramic (porcelain) mosaics shear strength	ANSI A 118.15	>400 psi (2.76 MPa / 28 kg/cm ²)	490 psi (3.24 MPa / 33 kg/cm ²)
Impervious ceramic (porcelain) mosaics shear strength with freeze-thaw cycling	ANSI A 118.15	>250 psi (1.73 MPa / 17.5 kg/cm ²)	372 psi (2.57 MPa / 26 kg/cm ²)
Impervious ceramic (porcelain) mosaics with heat aging	ANSI A 118.15	>400 psi (2.76 MPa / 28 kg/cm ²)	512 psi (3.53 MPa / 36 kg/cm ²)
Glazed wall tile shear strength	ANSI A 118.15	>450 psi (3.11 MPa / 31.5 kg/cm ²)	561 psi (3.81 MPa / 39 kg/cm ²)
Quarry tile shear strength	ANSI A 118.15	>150 psi (1 MPa / 10.5 kg/cm ²)	309 psi (2.13 MPa / 18 kg/cm ²)
Quarry tile to plywood shear strength	ANSI A 118.11	>150 psi (1 MPa / 10.5 kg/cm ²)	256 psi (1.77 MPa / 18 kg/cm ²)
7-Day Test	Test Method	ANSI Specification	Test Results
Impervious ceramic (porcelain) mosaics shear strength with water immersion	ANSI A 118.15	>200 psi (1.38 MPa / 14 kg/cm ²)	350 psi (2.42 MPa / 25 kg/cm ²)

Visit www.youtube.com/ARDEX101 to watch ARDEX Americas product videos.

For easy-to-use ARDEX Product Calculators and Product Information On the Go, download the ARDEX App at the iTunes Store or Google Play.



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