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# ARDEX X 77™ MICROTEC®

## Fiber Reinforced Tile and Stone Mortar

The most advanced technology ideal for large format porcelain tile installations, exterior or interior, floor or wall

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Use for setting porcelain, glass, quarry, ceramic and most natural stone tiles\*

Advanced technology for very large and thin porcelain tiles

Extended open time of 60 minutes – double the ISO standard

Unmatched sag resistance – double the ISO standard

Outstanding coverage – 110 sq. ft. per bag (1/4" sq. notch trowel)

Medium bed applications (large and heavy tile mortar)

Water and frost resistant - ideal for swimming pools and high traffic areas

Unique creamy consistency, extremely easy to mix and apply

Highly flexible; 3-hour pot life



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ARDEX Engineered Cements  
400 Ardex Park Drive  
Aliquippa, PA 15001 USA  
(888) 512-7339 (Phone)  
(724) 203-5000 (Phone)  
(724) 203-5001 (Fax)  
[www.ardexamericas.com](http://www.ardexamericas.com)

# ARDEX X 77™ MICROTEC®

## Fiber Reinforced Tile and Stone Mortar

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### Description and Usage

ARDEX X 77™ MICROTEC® Fiber Reinforced Tile and Stone Mortar is a high-performance, microfiber-reinforced, polymer-modified mortar formulated especially for large format tile installations. Use to install porcelain, glass, quarry, ceramic and most natural stone tiles\* over interior or exterior concrete and masonry floor and wall surfaces. Also use for interior applications over exterior-grade plywood. ARDEX X 77 is ideal for use in swimming pools and fountains and over in-floor heating systems and is recommended for all tile sizes, including mosaics.

Formulated to provide excellent bond strength, sag resistance and flexibility, ARDEX X 77 is ideal for the installation of large format tiles (exterior and interior), as well as high traffic areas, wet areas and exterior building façades.

### Substrate Preparation

ARDEX X 77 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" and the most current version of the Tile Council of North America's "Handbook for Ceramic Tile Installation" 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.

Should pre-leveling or subfloor repair be required, use ARDEX AM 100™ Rapid Set Pre-Tile Smoothing and Ramping Mortar, ARDEX A 38™ Rapid Set Screed or ARDEX A 38™ MIX Rapid Set, Premixed Screed for exterior or interior use, or use ARDEX Liquid BackerBoard® Self-Leveling Underlayment for Interior Wood and Concrete Subfloors, ARDEX TL 1000™ Tile Leveler, Self-Leveling Underlayment or ARDEX TL PATCH® Tile Leveler, Underlayment Patch and Skimcoat for interior use, as appropriate. Observe the instructions and dry times in the ARDEX technical data sheets.

ARDEX X 77 will isolate dormant cracks up to 1/8" (3 mm) wide. 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, existing tiles and certain non-porous substrates 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 77. Allow the scratch coat to cure 8 hours for wall tiles and/or 24 hours for floor tiles 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 77, and let the scratch coat cure 8 hours for wall tiles and 24 hours for floor tiles 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 (interior, dry applications only)

Mix ARDEX X 77 with ARDEX E 90™ Mortar Admix in accordance with the technical data sheet, and install directly over the existing non-porous surface.

#### Metal, Glass and Certain Other Non-Porous Surfaces

##### 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 (interior, dry applications only)

Mix ARDEX X 77 with ARDEX E 90™ Mortar Admix in accordance with the technical data sheet, and install directly over the existing non-porous surface. For more information, refer to the ARDEX Substrate Preparation Brochure at [www.ardexamericas.com](http://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 77, use 8 1/4 - 8 3/4 quarts (7.8 - 8.2 L) of clean water. For one 20 lb. (9 kg) bag of ARDEX X 77, use 4 1/8 - 4 3/8 quarts (3.9 - 4.1 L) of clean water. To mix smaller quantities by hand, use 2 parts powder to 1 part water by volume.

Pour water or water and ARDEX E 90 in the mixing container first, and then add the ARDEX X 77 while mixing for 2 to 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 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.

For improved adhesion, flexibility, strength and water repellance in specialized installations, add ARDEX E 90 in accordance with the instructions in the ARDEX E 90 technical data sheet, and then follow the mixing instructions above.

The pot life of ARDEX X 77 is approximately 3 hours 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 for proper transfer of ARDEX X 77 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. 60 minutes). Do not set tile or stone into skinned over mortar. The position of the tile or stone may be adjusted for up to approximately 20 - 30 minutes after installation.

## Grouting

Wall tiles can be grouted after 8 hours; floor tiles after 24 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.

## 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 cases requiring waterproofing, please refer to the ARDEX 8+9 technical data sheet and the ARDEX 8+9 5 Step Application Guide.

\*For setting moisture-sensitive natural stone or agglomerate tiles, use ARDEX X 32™ MICROTEC® Fiber Reinforced Rapid Setting Thin to Thick Bed Mortar or ARDEX N 23 MICROTEC® Rapid Set Natural Stone and Tile Mortar (interior, dry applications only). 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 White mixed with ARDEX E 90. Always comply with local building codes. Please contact the ARDEX Technical Service Department before proceeding with any of the above demanding applications.

ARDEX X 77 is intended for use at material and surface temperatures between 50° and 85° F (10° to 29° C). Do not install below 50°F (10°C) surface and air temperatures. For warm weather installation instructions, please contact the ARDEX Technical Service Department.

Never mix with cement or additives other than ARDEX-approved products. 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](http://www.ardexamericas.com).

## Technical Data According to ARDEX Quality Standards

All data based on a mixing ratio of 2 parts powder to 1 part water by volume at 70°F (21°C). Physical properties are typical values and not specifications.

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<b>Mixing Ratio:</b>	8 1/4 - 8 3/4 quarts (7.8 - 8.2 L) of water per 40 lb. (18 kg) bag 4 1/8 - 4 3/8 quarts (3.9 - 4.1 L) of water per 20 lb. (9 kg) bag For smaller batches, use 2 parts powder to 1 part water by volume
<b>Coverage (approx.):</b>	1/4" x 1/4" x 1/4" Sq. Notch Trowel 110 sq. ft. (10.2 sq. m) 1/4" x 3/8" x 1/4" Sq. Notch Trowel 82.5 sq. ft. (7.6 sq. m)  1/2" x 1/2" x 1/2" Sq. Notch Trowel 55 sq. ft. (5.1 sq. m)
<b>Open time:</b>	Up to 60 minutes
<b>Pot Life:</b>	Approx. 3 hours
<b>Adjustments Time:</b>	Approx. 20 - 30 minutes
<b>Time to Grout:</b>	Walls: 8 hours Floors: 24 hours
<b>Color:</b>	Gray White
<b>Packaging:</b>	40 lb. (18 kg) bag 20 lb. (9 kg) bag (White only)
<b>Storage:</b>	Store in a cool dry area. Do not leave bags exposed to sun.
<b>Shelf Life:</b>	1 year, if unopened
<b>Warranty:</b>	ARDEX Engineered Cements Standard Limited Warranty applies. Also eligible for the ARDEX SystemOne™ Warranty when used in conjunction with ARDEX grouts and ARDEX caulks.

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 <sup>2</sup> )	Pass
Impervious ceramic (porcelain) mosaics shear strength	ANSI A 118.15	>400 psi (2.76 MPa / 28 kg/cm <sup>2</sup> )	573 psi (3.95 MPa / 40.28 kg/cm <sup>2</sup> )
Impervious ceramic (porcelain) mosaics shear strength with freeze-thaw cycling	ANSI A 118.15	>250 psi (1.73 MPa / 17.5 kg/cm <sup>2</sup> )	327 psi (2.25 MPa / 22.94 kg/cm <sup>2</sup> )
Impervious ceramic (porcelain) mosaics with heat aging	ANSI A 118.15	>400 psi (2.76 MPa / 28 kg/cm <sup>2</sup> )	517 psi (3.56 MPa / 36.34 kg/cm <sup>2</sup> )
Glazed wall tile shear strength	ANSI A 118.15	>450 psi (3.11 MPa / 31.5 kg/cm <sup>2</sup> )	536 psi (3.69 MPa / 37.68 kg/cm <sup>2</sup> )
Quarry tile shear strength	ANSI A 118.15	>150 psi (1 MPa / 10.5 kg/cm <sup>2</sup> )	356 psi (2.45 MPa / 25.02 kg/cm <sup>2</sup> )
Quarry tile to plywood shear strength	ANSI A 118.11	>150 psi (1 MPa / 10.5 kg/cm <sup>2</sup> )	204 psi (1.40 MPa / 14.34 kg/cm <sup>2</sup> )
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 <sup>2</sup> )	314 psi (2.16 MPa / 22.07 kg/cm <sup>2</sup> )

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

Interior or Exterior	Substrates	Tile Type	Special Instructions
Interior or exterior	Concrete and other cementitious surfaces, existing tiles, metal, glass, in-floor heating systems	Porcelain, quarry, ceramic, glass and most natural stone tiles*	
	Swimming pools, fountains	Porcelain, quarry, ceramic and most natural stone tiles*	
	Swimming pools (only at the water lines)	Glass	Only ARDEX X 77 White, and only when mixed with ARDEX E 90
Interior only	Exterior-grade plywood	Porcelain, quarry, ceramic, glass and most natural stone tiles*	

Made in the USA.

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Updated 11-10-2017. Supersedes all previous versions.

Check [www.ardexamericas.com](http://www.ardexamericas.com) for most recent version and for technical updates, which may supersede the information herein.

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



**ARDEX Engineered Cements**  
**400 Ardex Park Drive**  
**Aliquippa, PA 15001 USA**  
**(888) 512-7339 (Phone)**  
**(724) 203-5000 (Phone)**  
**(724) 203-5001 (Fax)**  
[www.ardexamericas.com](http://www.ardexamericas.com)