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# ARDEX TL 1400™

## Self-Leveling Underlayment

The easy way to achieve an optimal smooth, flat surface for installing tile, especially when installing large and super format tile and stone!

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For smoothing substrates prior to tiling over interior concrete, terrazzo, tile, epoxy coatings and non-water soluble adhesive residue over concrete

Installs up to 1 1/4" (3 cm) neat

Can be tapered to meet existing elevations

Walk on in 2 to 3 hours; Install tile in 6 hours

Interior use only



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# ARDEX TL 1400™

## Self-Leveling Underlayment

### Description and Usage

ARDEX TL 1400™ is a blend of Portland cements, hydraulic cements and specialty polymers formulated to smooth substrates including concrete, terrazzo, tile, epoxy coatings and non-water soluble adhesive residue on concrete prior to installing tile and other floor coverings on, above and below grade. ARDEX TL 1400 is easy to mix with just water resulting in a pourable and pumpable material that finds its own level and delivers a flat, durable surface that is especially suited for large and super format tile and stone installations, as well as most other types of floor coverings.

### Substrate Preparation

For each of the substrates listed below, acid etching, adhesive removers, solvents and sweeping compounds are not acceptable means for cleaning the substrate. Substrate and ambient temperatures must be a minimum of 50°F (10°C) for the installation of ARDEX products. Substrates must be dry during installation and cure. For more detailed information on substrate preparation, please refer to the ARDEX Substrate Preparation Brochure at [www.ardexamericas.com](http://www.ardexamericas.com).

#### Concrete

All concrete substrates must be solid, structurally sound, thoroughly clean and free of oil, wax, grease, asphalt, latex and gypsum compounds, curing compounds\*, sealers and any contaminant that might act as a bond breaker. If necessary, mechanically clean the floor down to sound, solid concrete by shot blasting or similar. Over-watered, frozen or otherwise weak concrete surfaces also must be cleaned down to sound, solid concrete by mechanical methods. Sanding equipment is not an effective method to remove contaminants from concrete.

#### \*Note on Curing Compounds

Test areas of ARDEX TL 1400 can be installed and evaluated over concrete slabs that have been treated with either silicate or acrylic resin curing compounds. These compounds must be installed in strict accordance with the compound manufacturer's written recommendations. If a silicate type has been used, all residual salts must be removed. For instructions on priming concrete with acceptable curing compounds, please refer to the Priming section of this brochure.

Please be advised, however, that there are a number of curing compounds sold today that are wax- or petroleum-based emulsions. These are permanent bond breakers that must be removed completely prior to patching or leveling. Dissipating compounds must also be removed completely by mechanical means prior to installing any ARDEX material.

It is imperative to be able to determine the type of curing compound that was used before proceeding. Any curing compound that cannot be identified should be completely, mechanically removed.

#### Adhesive Residues on Concrete

ARDEX TL 1400 also can be installed over non-water-soluble adhesive residue on concrete only. The adhesive must first be tested to make certain it is not water-soluble. Water-soluble adhesives must be removed mechanically down to clean concrete.

Non-water-soluble adhesives should be prepared to a thin, well-bonded residue using the wet-scraping technique as recommended by the Resilient Floor Covering Institute ([www.rfci.com](http://www.rfci.com)) to remove thick areas and adhesive build-up. If the adhesive is not well-bonded

to the concrete or is brittle, powdery or otherwise weak, it must be completely, mechanically removed down to clean, sound, solid concrete. Any existing patching materials below the adhesive must be removed completely.

#### Other Non-Porous Substrates

ARDEX TL 1400 also can be applied over other clean, sound and solidly bonded non-porous substrates, including terrazzo, burnished concrete, epoxy coating systems, and ceramic and quarry tile. The substrate must be clean, including the complete removal of existing waxes and sealers, dust, dirt, debris and any other contaminant that may act as a bond breaker. Substrate preparation must be by mechanical means, such as shot blasting.

#### Note on Asbestos-Containing Materials

Please note that when removing existing flooring, any asbestos-containing materials should be handled and disposed of in accordance with applicable federal, state and local regulations.

#### Recommended Tools

ARDEX T-1 Mixing Paddle, ARDEX T-10 Mixing Drum, ARDEX T-4 Spreader, ARDEX T-5 Smoother, ARDEX MB-5 Measuring Bucket (5 quarts / 4.75 L per 50 lb. / 22.7 kg bag), a 1/2" (12 mm) heavy-duty drill (min. 650 rpm) and baseball or soccer shoes with non-metallic cleats.

#### Priming

**Note:** ARDEX primers may need longer drying times with low surface temperatures and/or high ambient humidity. Do not install ARDEX TL 1400 before the primer has dried thoroughly.

ARDEX P 4™ Primer can be installed on all the below substrates listed. As some settling may occur, it may be necessary to stir the ARDEX P 4 prior to use to ensure that all settled components are in full suspension. Apply a thin, even layer to the substrate using a short-nap roller, sponge paint roller or paintbrush. Allow the primer to dry to a thin, opaque white film (min. 30 - 60 minutes; 70°F /21°C). Once dry, there is no time limit before the tile or ARDEX self-leveling underlayment installation may proceed. However, please note that the tile or ARDEX self-leveling underlayment installation should proceed as soon as possible to avoid surface contamination or damage to the primed surface. If an ARDEX self-leveling underlayment will be installed, the underlayment thickness must not exceed 1/2" (12 mm). Please also note that, when installing ARDEX K 13™ Premium Self-Leveling Underlayment or ARDEX K 15® Premium Self-Leveling Underlayment over ARDEX MC RAPID, ARDEX P 82 must be used. Please see the corresponding technical data sheets for details.

#### Absorbent Concrete

Standard absorbent concrete must be primed with ARDEX P 51™ Primer diluted 1:1 with water. Apply evenly with a soft bristled push broom. Do not use paint rollers, mops or spray equipment. Do not leave any bare spots. Brush off puddles and excess primer. Allow primer to dry to a clear, thin film (min. 3 hours, max. 24 hours).

Extremely absorbent concrete may require two applications of ARDEX P 51 to minimize the potential for pinholes forming in the ARDEX TL 1400. Make an initial application of ARDEX P 51 diluted with 3 parts water by volume. Let dry thoroughly (1 to 3 hours), and install a second application of ARDEX P 51 mixed 1:1 with water as stated above.



## Non-Porous

Non-porous substrates such as burnished concrete, terrazzo, ceramic and quarry tile, epoxy coating systems, non-water soluble adhesive residue on concrete and concrete treated with silicate compounds must be primed with ARDEX P 82™ Ultra Prime. Follow the mixing instructions on the container, and apply with a short-nap or sponge paint roller, leaving a thin coat of primer. Do not leave any bare spots. Back roll with a dry roller to remove excess primer. ARDEX P 82 should be applied within 1 hour of mixing. Allow primer to dry to a thin, slightly tacky film (min. 3 hours, max. 24 hours).

**Note:** If a suitable acrylic curing compound is used, test the surface for porosity. If the concrete is porous, prime with ARDEX P 51. If it is non-porous, prime with ARDEX P 82.

## Joints and Cracks

Under no circumstances should ARDEX TL 1400 be installed over any moving joints or moving cracks. All existing expansion joints, isolation joints and construction joints, as well as all moving cracks, must be honored up through the underlayment and flooring.

As needed, dormant cracks and dormant control joints can be filled with ARDEX SKM or similar, following the instructions in the technical brochure.

However, please be advised that while dormant control joints and dormant cracks in the slab may be filled with ARDEX SKM or similar prior to installing ARDEX TL 1400, this filling is not intended to act as a repair method that will eliminate the possibility of joints and cracks telegraphing. ARDEX SKM and ARDEX TL 1400 are non-structural materials and are, therefore, unable to restrain movement within a concrete slab. This means that while some dormant joints and dormant cracks may not telegraph through the ARDEX materials and up into the finish flooring, cracks will telegraph in any area that exhibits movement, such as an active crack, an expansion or isolation joint, or an area where dissimilar substrates meet. We know of no method to prevent this telegraphing from occurring.

## Mixing and Application

### Manually

ARDEX TL 1400 is mixed two bags at a time. Mix each 50 lb. (22.7 kg) bag with 5 quarts (4.75 L) of clean water. Pour the water in the mixing drum first, and then add the ARDEX TL 1400 while mixing with an ARDEX T-1 Mixing paddle and a 1/2" (12 mm) heavy-duty drill (min. 650 rpm). Mix thoroughly for approximately 2 to 3 minutes to obtain a lump-free mix. **Do not overwater!** Yellowish foam while mixing, or settling of the sand aggregate while placing, indicates overwatering.

### Pumping

ARDEX TL 1400 can be pumped using ARDEX ARDIFLO™ Automatic Mixing Pumps. ARDEX ARDIFLO Pumps provide high productivity and smooth, consistent installations. Pumps may be rented from an authorized ARDEX Distributor. Contact the ARDEX Technical Service Department for complete pump operation instructions.

ARDEX TL 1400 has a flow time of 10 minutes at 70°F (21°C). Pour the mix onto the floor and spread with the ARDEX T-4 Spreader. Immediately smooth the material with the ARDEX T-5 Smoother. Work in a continuous manner during the entire self-leveling installation. Wear baseball or soccer shoes with non-metallic cleats to avoid leaving marks in the liquid ARDEX TL 1400.

## Thickness of Application

Install ARDEX TL 1400 at a minimum thickness of 1/8" (3 mm) over the highest point in the floor, which typically results in an average thickness of 1/4" (6 mm) or more over the entire floor. ARDEX TL 1400 can be installed up to 1 1/4" (3 cm) thick.

To match existing elevations, ARDEX TL 1400 can be tapered to as thin an application as the sand in the material will allow. If a true featheredge is needed, ARDEX recommends using ARDEX SKM for transitions.

## Wear Surface

ARDEX TL 1400 is not to be used as a permanent wear surface, even if coated or sealed. ARDEX TL 1400 must be covered by a suitable floor covering material, such as tile, carpet, vinyl flooring, etc. For resurfacing and leveling indoor concrete floors in warehouses, storage areas, hallways or other areas where a wear surface is required, use ARDEX SD-T® Self-Drying, Self-Leveling Concrete Topping.

## Installation of Flooring

ARDEX TL 1400 is walkable 2 to 3 hours after installation.

The cure time required prior to installing flooring will vary with the thickness of the ARDEX TL 1400 installation and the type of flooring being installed. See the chart below for details. All dry times are calculated at 70°F (21°C). Drying time is a function of jobsite temperature and humidity conditions, as well as the installation thickness. Low substrate temperatures and/or high ambient humidity will extend the drying time. Adequate ventilation and heat will aid drying. Forced drying can dry the surface of the underlayment prematurely and is not recommended.

	Installation thicknesses of 3/8" (9.5 mm) or less	Installation thicknesses greater than 3/8" (9.5 mm)
Moisture-insensitive tile (ceramic, quarry, porcelain):	6 hours	6 hours
Porous-backed carpet:	12 hours	Mat test*
Non-porous-backed carpet, vinyl sheet, vinyl tile, vinyl plank, rubber, linoleum:	24 hours	Mat test*
All other floor coverings:	Mat test*	Mat test*

\*Where mat testing is required, allow the installation to dry a minimum of 24 hours prior to mat testing in accordance with ASTM D4263. To do this, place a piece of heavy plastic or a smooth rubber mat down over a 2' X 2' area. After 24 hours, lift the barrier material and inspect for surface darkening. A darkened area indicates excessive moisture is still present, and further drying time is required. Repeat the above test at regular intervals until no darkening is observed.

## Notes

FOR PROFESSIONAL USE ONLY.

This product is intended for interior use over dry substrates only. Do not use in areas of constant water exposure or in areas exposed to permanent or intermittent substrate moisture, as this may jeopardize the performance of the underlayment and the floor covering. This product is not a vapor barrier, and will allow free passage of moisture. **Follow the directives of the floor covering manufacturer regarding the maximum allowable substrate moisture content, and test the substrate prior to installing ARDEX TL 1400.** Where substrate moisture exceeds the maximum allowed, ARDEX recommends the use of ARDEX Moisture Control Systems. For further information, please refer to the ARDEX technical brochures at [www.ardexamericas.com](http://www.ardexamericas.com).

Always install an adequate number of properly located test areas, including the finish flooring, to determine the suitability of the products for the intended use. As floor coverings vary, always contact and rely upon the floor covering manufacturer for specific directives, such as maximum allowable moisture content, adhesive selection and intended end use of the product.

Never mix with cement or additives. Observe the basic rules of concrete work. Do not install below 50°F (10°C) surface and air temperatures. Install quickly if the substrate is warm, and follow warm weather instructions available from the ARDEX Technical Service Department.

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 4 parts powder to 1 part water by volume at 70°F / 21°C and in accordance with ASTM C1708 as applicable. Physical properties are typical values and not specifications.

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<b>Mixing Ratio:</b>	5 quarts (4.75 L) of water per 50 lb. (22.7 kg) bag
<b>Coverage:</b>	25 sq. ft. per bag at 1/4" (2.3 m <sup>2</sup> at 6 mm) Coverage will vary depending on the texture of the surface being smoothed.
<b>Flow Time:</b>	10 minutes
<b>Initial Set (ASTM C191):</b>	Approx. 30 minutes
<b>Final Set (ASTM C191):</b>	Approx. 90 minutes
<b>Compressive Strength (ASTM C109/mod – Air cure only):</b>	4000 psi (280 kg/cm <sup>2</sup> ) at 28 days
<b>Flexural Strength (ASTM C348):</b>	1000 psi (70 kg/cm <sup>2</sup> ) at 28 days
<b>Walkable:</b>	2 to 3 hours
<b>Install Flooring:</b>	Tile in 6 hours; other floor coverings see Installation of Flooring section above.
<b>VOC:</b>	0
<b>Packaging:</b>	50 lb. (22.7 kg) bag
<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, L.P. Standard Limited Warranty applies.

Made in the USA.

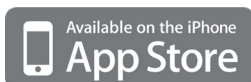
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Updated 01-01-2020. Published 02/24/2020. Supersedes all previous versions. Check [www.ardexamericas.com](http://www.ardexamericas.com) for updates.

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