# ARDEX K 500™

## Self-Leveling Concrete Topping

**A blend of Portland cement and other hydraulic cements**

**Resurface indoor concrete and certain non-porous surfaces**

**Walk on in 2 to 3 hours, seal in as little as 24 hours**

**Polish in as little as 48 hours**

**Use for interior floors only**

TESTED IN ACCORDANCE WITH ASTM C 1708

**ARDEX Engineered Cements**
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# ARDEX K 500™

## Self-Leveling Concrete Topping

### Description and Usage

ARDEX K 500™ is a self-leveling, no troweling topping for fast track resurfacing, smoothing or leveling of indoor concrete. ARDEX K 500 can be installed from 1/4" to 1 1/2" (6 mm to 3.8 cm) thick in one operation and up to 5" (12.7 cm) with the addition of appropriate aggregate (install at a minimum thickness of 3/8" (9.5 mm) if being used as a polished topping). Use ARDEX K 500 in warehouses, utility rooms and light manufacturing areas to provide a hard, flat, smooth surface that can be sealed. Also use in areas that require a polished surface. Sealing can proceed in as little as 24 hours, and polishing can proceed in as little as 48 hours.

### Substrate Preparation

All substrates must be solid, 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. Acid etching, adhesive removers, solvents and sweeping compounds are not acceptable means for cleaning the substrate. Sanding equipment is not an effective method to remove curing and sealing compounds.

**Concrete:** If necessary, mechanically clean the floor down to sound, solid concrete by shot blasting, grinding or similar. Over-watered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods. The concrete surface must have a minimum ICRI Concrete Surface Profile of 3 (CSP #3). Any additional preparation required to achieve this must likewise be mechanical.

**Non-Absorbent Substrates:** Mechanically abrade non-absorbent substrates such as terrazzo, ceramic and stone tiles, to create a bonding surface.

### Recommended Tools

ARDEX T-1 Mixing Paddle, ARDEX T-10 Mixing Drum, ARDEX T-4 Spreader, ARDEX T-5 Smoother, ARDEX MB-5.5 Measuring Bucket [5 1/2 quarts (5.2 L) per 55 lb. (25.0 kg) bag], 1/2" (12 mm) heavy-duty drill (min. 650 rpm), and baseball or soccer shoes with non-metallic cleats.

### Joints and Moving Cracks

Under no circumstances should ARDEX K 500 be installed over any joints or any moving cracks. All existing expansion joints, isolation joints, construction joints and control joints (saw-cuts), as well as any moving cracks, must be honored up through the topping by installing a flexible sealing compound specifically designed for use in moving joints, such as ARDEX ArdiSeal™ Rapid Plus. Failure to do so may result in cracking and/or disbonding of the topping. Even the slightest amount of movement in a control joint will cause the ARDEX K 500 to show a hairline crack in a pattern reflective of the joint.

ARDEX cannot be responsible for problems that arise from joints, existing cracks or new cracks that may develop after the system has been installed.

### Dormant Cracks

Before proceeding with the installation, all dormant cracks greater than 1/32" (0.7 mm) wide must be prefilled with a fully rigid, high-modulus, 100% solids material, such as ARDEX ArdiFix™. Please note that the repair material must be sand broadcast to refusal while still fresh and allowed to cure fully prior to removing all excess sand.

The filling of dormant cracks as described above is recommended to help prevent the cracks from showing through the topping. However, should movement occur, cracks will reappear.

### Priming

Standard absorbent concrete must be primed with ARDEX P 51™ Primer diluted 1:1 with water. Apply evenly with a soft 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 avoid the formation of bubbles and pinholes in the ARDEX K 500. In such cases, make an initial application of ARDEX P 51 diluted with 3 parts by volume of water. Let dry thoroughly (1 to 3 hours) and install a second application of ARDEX P 51 mixed 1:1 with water as stated above.

For all applications of ARDEX K 500 that will be polished and for any area where aesthetics are critical, as well as for applications over non-absorbent substrates such as terrazzo, ceramic and stone tiles, prime with ARDEX EP 2000™ Substrate Preparation Epoxy Primer. Follow the general recommendations for substrate preparation above, and apply the ARDEX EP 2000 with sand broadcast, carefully following the instructions in the ARDEX EP 2000 technical brochure.

### Mixing and Application

**MANUALLY:** ARDEX K 500 is mixed two bags at a time. Mix each 55 lb. (25 kg) bag with 5 1/2 quarts (5.2 L) of clean water. Pour the water in the mixing drum first, and then add each bag of ARDEX K 500 while mixing with an ARDEX T-1 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.

When installing ARDEX K 500 in high-stress areas subject to rolling loads such as rubber-wheeled forklift traffic or similar use, the addition of ARDEX E 25 Resilient Emulsion is required to increase the resiliency of the ARDEX K 500. Mix 2 quarts (1.9 L) of ARDEX E 25 with 5 quarts (4.75 L) of water for each bag of ARDEX K 500 following the mixing instructions above.

**PUMPING:** ARDEX K 500 may also be pumped using ARDEX ARDIFLO™ Automatic Mixing Pumps. However, please contact the ARDEX Technical Service Department for details.

ARDEX K 500 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. Wear baseball or soccer shoes with non-metallic cleats to avoid leaving marks in the liquid ARDEX K 500.

## Thickness of Application

ARDEX K 500 can be installed from 1/4" (6 mm) up to 1 1/2" (3.8 cm) over large areas neat and up to 5" (13 cm) with the addition of proper aggregate. ARDEX K 500 also can be tapered to meet existing elevations. Install at a minimum thickness of 3/8" (9.5 mm) if being used as a polished topping.

For areas with thicknesses greater than 1 1/2" (3.8 cm), mix ARDEX K 500 with washed and well-graded 1/8" to 3/8" (3 to 9.5 mm) pea gravel. Please note that the aggregate size must not exceed 1/3 the depth of the pour. Mix the ARDEX K 500 with water first, and then add 1 part aggregate by volume, mixing until the aggregate is completely coated. Do not use sand. If the aggregate is wet, reduce the amount of water to avoid overwatering.

The addition of aggregate will diminish the workability of the product and may make it necessary to install a neat coat to obtain a smooth surface. Allow the initial application to dry for 12-16 hours, and then prime this layer with ARDEX P 51 Primer diluted 1:1 with water, following the priming instructions above. Allow primer to dry to a clear, thin film (min. 3 hours, max. 24 hours) before installing the neat coat of ARDEX K 500. For all applications of ARDEX K 500 that will be polished and/or for any area where aestehtics are critical, prime the initial application of ARDEX K 500 with ARDEX EP 2000 as detailed in the technical brochure.

## Wear Surface

The surface of ARDEX K 500 always must be protected from oil, salt, water and surface wear by applying a suitable protection system, such as a concrete sealer or paint. ARDEX recommends the use of ARDEX CG Concrete Guard™ to seal ARDEX K 500 that will be exposed to normal foot traffic. Sealing with ARDEX CG can proceed after 24 hours under standard conditions of 70°F/21°C and 50% RH. Traffic can proceed as soon as the ARDEX CG has dried to ARDEX recommendations. For ARDEX CG installation instructions, please refer to the ARDEX CG Technical Brochure.

For areas to receive heavier traffic, as well as areas such as restaurants and food courts, sealing should be done using an appropriate wear protection coating. As the performance of coating systems varies greatly, the installer is responsible for assessing the suitability of these coatings. If a waterborne sealer is to be applied at a thickness not-to-exceed a total of 20 mils (500 microns), the coating can be applied to the surface of the ARDEX K 500 after 24 hours at 70°F (21°C). When using a solvent-borne or 100% solids coating applied at a total thickness of 20 mils (500 microns) or less, the ARDEX K 500 must cure for a minimum of 48 hours at 70°F (21°C). When the total application thickness will exceed 20 mils (500 microns), the ARDEX K 500 must cure 7 days at 70°F (21°C) prior to installing the protection layer.

**Prior to sealing or polishing, please note:** 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. Traffic can proceed as soon as the sealer has dried to manufacturer recommendations.

## Cracking

ARDEX K 500 is formulated as a highly durable, nonstructural wear surface. As such, it is important to note that no one can predict with 100% accuracy the appearance of cracking in a non-structural topping. While there can be several causes for cracking, it must first be understood that the installation of thin layers of non-structural toppings are not capable of restraining movement in the structural slab, which could lead to reflective cracking. Areas most likely to telegraph include those with deflection of a concrete slab, vibration of a concrete slab in metropolitan areas due to truck traffic and subways, high rise buildings that sway or "rack" in the wind, existing cracks in the floor, control joints or saw-cuts, expansion joints and small cracks off of the corners of metal inserts such as electrical boxes or vents in the floor. While priming with ARDEX EP 2000 is the best way to minimize the possibility of reflective cracking, cracks may telegraph up into the surface in any area that exhibits movement. We know of no method to prevent this telegraphing from occurring.

Additionally, certain jobsite conditions can lead to hairline cracking, also known as "map cracking" or "crazing." Hairline cracking, while aesthetically unpleasant, typically does not affect the overall performance of the topping. The most common cause of hairline cracking is excessively rapid moisture evaporation from the topping during cure, which tends to happen when ambient humidity in the space is very low and/or air rapidly moves over the surface of the topping. Hairline cracking can also occur when there is even slight movement or deflection in the existing substrate.

If cracking occurs, we recommend sounding the affected areas to ensure that the topping is well-bonded to the substrate. So long as the topping is well-bonded, its overall performance will not be affected.

## Notes

FOR PROFESSIONAL USE ONLY. ARDEX K 500 wear surfaces are intended for foot traffic, moderate, rubber-wheeled forklift traffic and similar uses. Excessive service conditions, such as steel- or hard plastic-wheeled traffic or dragging heavy metal equipment or loaded pallets with protruding nails over the floor, will cause gouging and indentations. ARDEX K 500 is not a resurfacing topping for heavy-duty manufacturing or industrial floors or for chemical environments requiring customized industrial toppings. As with any floor covering (wood, soft natural stone, marble, etc.), allowances must be made for scratches or abrasion that occur due to moving or sliding furniture or fixtures over the surface. Keeping the floor surface clean and free of dirt or other contaminants also will help to minimize scratching and abrasion due to foot traffic.
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 topping and sealer. This product is not a vapor barrier, and will allow free passage of moisture. **Follow the directives of the sealer manufacturer regarding the maximum allowable substrate moisture content and test the substrate prior to installing ARDEX K 500.** Where substrate moisture exceeds the maximum allowed, ARDEX recommends the use of the

ARDEX MC™ ULTRA Moisture Control System. For further information, please refer to the ARDEX Technical Brochure.

ARDEX K 500 wear surfaces are not intended to be perfectly homogeneous in appearance. The physical act of spreading and smoothing will result in optical variations in the appearance of the floor even though it is very flat. The aesthetic appearance of the floor that is created is subject to possible technical and artistic tolerances. Variations in the overall finished appearance are an intended effect and should be expected.

Always install an adequate number of properly located test areas, including the wear protection system, to determine the suitability and aesthetic value of the products for the intended use. As coatings vary, always contact and rely upon the coating manufacturer for specific directives, such as maximum allowable moisture content, coating selection and intended end use of the product.

The finished floor does not achieve its published surface hardness until after 28 days.

While ARDEX K 500 can be installed over concrete that contains in-floor heating, ARDEX K 500 should not be used to encapsulate any heating system directly. If the concrete substrate has in-floor heating, it should be turned off and the concrete allowed to cool before installing ARDEX K 500.

ARDEX primers may need longer drying times with low surface temperatures and/or high ambient humidity. Do not install ARDEX K 500 before the primer has dried thoroughly.

Never mix with cement or additives other than ARDEX-approved products. 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.

## 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 3.75 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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|---|---|
| **Mixing Ratio:** | 5 1/2 quarts (5.2 L) of water per 55 lb. (25 kg) bag |
| **Coverage:** | 27.5 sq. ft. per bag at 1/4" (2.6 sq. m at 6 mm)<br>13.75 sq. ft. per bag at 1/2" (1.3 sq. m at 12 mm) |
| **Flow Time:** | 10 minutes |
| **Initial Set (ASTM C191):** | Approx. 30 minutes |
| **Final Set (ASTM C191):** | Approx. 90 minutes |
| **Compressive Strength (ASTM C109/mod – Air cure only):** | 5300 psi (371.0 kg/cm$^2$) at 28 days |
| **Flexural Strength (ASTM C348):** | 1000 psi (70.0 kg/cm$^2$) at 28 days |
| **Walkable:** | 2 to 3 hours |
| **Min. Cure Time Prior to Coating:** | Waterborne: 24 hours<br>Solvent-borne and 100% solids (less than 20 mils/0.5 mm): 48 hours. High build polymer coating (greater than 20 mils/0.5 mm): 7 days |
| **Color:** | Gray |
| **VOC:** | 0 |
| **Packaging:** | 55 lb. (25 kg) net weight bag |
| **Storage:** | Store in a cool, dry area. Do not leave bags exposed to sun. |
| **Shelf Life:** | 1 year, if unopened |
| **Warranty:** | ARDEX Engineered Cements Standard Limited Warranty applies. |

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



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