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# **ARDEX K 500<sup>TM</sup>**

## **Self-Leveling Concrete Topping**

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**Portland cement-based**

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

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

**Use for interior floors only**

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# ARDEX K 500™

## Self-Leveling Concrete Topping

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### Description and Usage

ARDEX K 500™ is a self-leveling, no troweling, Portland cement-based topping for fast track resurfacing, smoothing, or leveling of indoor concrete. Installs from ¼" to 1½" (6 mm to 3.8 cm) in one operation, and up to 5" (12.7 cm) with the addition of appropriate aggregate. Use ARDEX K 500 to provide a hard, flat, smooth surface for warehouses, utility rooms and light manufacturing.

### Substrate Preparation

All concrete substrates must be solid, thoroughly clean and free of oil, wax, grease, asphalt, latex and gypsum compounds, curing and sealing compounds, and any other contaminant that might act as a bond breaker. If necessary, mechanically clean the substrate down to sound, solid concrete by shot blasting, scarifying or similar. Overwatered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods. 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. Substrates must be dry and properly primed for a successful installation. Substrate and ambient temperatures must be a minimum of 50°F (10°C) for the installation of ARDEX products. For further information, please refer to the ARDEX Substrate Preparation Brochure.

### 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 [5½ quarts (5.2 Liters) per 55 lb (25 kg) bag], and a ½" heavy-duty drill (12 mm, min. 650 rpm).

### 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 areas where aesthetics are critical, use ARDEX EP 2000™ SUBSTRATE PREPARATION EPOXY instead of ARDEX P 51 to minimize the potential for reflective cracking.

Non-absorbent substrates such as terrazzo, ceramic and stone tiles require priming with ARDEX EP 2000. Follow the general recommendations for substrate preparation

above, and apply the ARDEX EP 2000 with sand broadcast, carefully following the instructions given in the ARDEX EP 2000 Technical Brochure.

### Moving Joints and Cracks

Under no circumstances should ARDEX K 500 be installed over any moving joints or 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. 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.

### Mixing And Application – Manually

ARDEX K 500 is mixed 2 bags at a time. Mix each 55 lb bag (25 kg) with 5½ quarts (5.2 liters) of water. Pour the water in the mixing drum first, then add each bag of ARDEX K 500 while mixing with an ARDEX T-1 Paddle and a ½" heavy-duty drill (12 mm, 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.

ARDEX K 500 has a flow time of 10 minutes at 70°F (21°C). Pour the liquid mix on 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.

When installing ARDEX K 500 in high-stress areas subject to rolling loads such as rubber-wheel forklift traffic or similar usage, the addition of ARDEX E 25™ RESILIENT EMULSION is required to increase the resiliency of the ARDEX K 500. For this application, mix 2 quarts (1.9 liters) of ARDEX E 25 with 5 quarts (4.75 liters) of water for each bag of ARDEX K 500 following the instructions above.

### Mixing And Application – Pumping

ARDEX K 500 can be pumped using the ARDEX Levelcraft™ Automatic Mixing Pump. The Levelcraft Pump provides for high productivity and a smooth, consistent installation. The pump may be rented from an authorized ARDEX Distributor and is supported by the ARDEX Technical Service Department.

Start the pump at a water setting of 165 gallons per hour, and then adjust to the minimum water reading that allows self-leveling properties. **Do not overwater!** Check the consistency of the product on the floor to ensure a uniform distribution of the sand aggregate at both the top surface and bottom of the pour. Conditions during the installation

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such as variations in water, powder, substrate and ambient temperature, require that the water setting be adjusted during installation to avoid overwatering.

When installing ARDEX K 500 in high-stress areas subject to rolling loads such as rubber-wheel forklift traffic or similar usage, the addition of ARDEX E 25 is required to increase the resiliency of the ARDEX K 500. Please contact the ARDEX Technical Service Department for pumping instructions.

ARDEX K 500 has a flow time of 10 minutes at 70°F (21°C). Pump the liquid mix on 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. Contact the ARDEX Technical Service Department for complete pump installation instructions.

### **Thickness of Application**

ARDEX K 500 can be installed from ¼" (6 mm) up to 1½" (3.8 cm) over large areas in one pour, and up to 5" (12.7 cm) with the addition of proper aggregate. ARDEX K 500 can also be tapered to match existing elevations.

For areas thicker than 1½" (3.8 cm), mix the ARDEX K 500 with washed and well-graded ⅛" to ¼" (3 to 6 mm) pea gravel. Mix 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 finish coat to obtain a smooth surface. Allow the initial application to dry for 16 hours. Prime this layer with ARDEX P 51 mixed 1:1 with water. Allow the primer to dry (min. 3 hours, max. 24 hours) before installing the finish coat. Please note that for installations using ARDEX EP 2000, only the finish layer requires the use of ARDEX EP 2000. Install as outlined above.

### **Wear Surface**

The surface of ARDEX K 500 must always 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. Low ambient temperatures and/or high humidity can extend this time. Traffic can proceed as soon as the ARDEX CG has dried to ARDEX recommendations. For installation instructions for ARDEX CG, please refer to the ARDEX 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 epoxy 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 a minimum of 7 days at 70°F (21°C) prior to installing the protection layer.

Once installed, any finished floor surface requires routine cleaning and maintenance. After installing the initial coats of sealer, the best way to ensure the long-term appearance of a newly installed floor is by the use of a sacrificial floor finish ("wax" or "polish") applied over the surface of the newly installed and sealed floor. This sacrificial coating is the best way to ensure the long-term appearance of a newly installed floor. All floor coatings will wear as a function of traffic and maintenance, and the use of a sacrificial coating avoids wear on the original sealer while providing a simple maintenance solution.

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.

### **Cracks**

ARDEX K 500 is formulated as a highly durable, non-structural 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.

## Notes

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 coating. This product is not a vapor barrier and will allow free passage of moisture. **Follow the directives of the coating 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 using ARDEX Moisture Control Systems. For further information, please refer to the ARDEX Technical Brochures.

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.

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 the warm weather instructions available from the ARDEX Technical Service Department.

Low substrate temperatures and/or high ambient humidity require longer drying times for ARDEX primers. Do not install ARDEX K 500 before primer has dried thoroughly. Do not install ARDEX K 500 below 50°F (10°C) surface and air temperature.

## Precautions

ARDEX K 500 contains Portland cement and sand aggregate. Avoid eye and skin contact. Mix in a well ventilated area and avoid breathing powder or dust. KEEP OUT OF REACH OF CHILDREN. Carefully read and follow all cautions and warnings on product label.

## Technical Data According To ARDEX Quality Standards

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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.

<b>Mixing Ratio:</b>	5½ quarts (5.2 liters) of water per 55 lb. (25 kg) bag
<b>Coverage:</b>	27.5 sq. ft. per bag at ¼" (2.55 m <sup>2</sup> at 6 mm) 13.75 sq. ft. per bag at ½" (1.27 m <sup>2</sup> at 12 mm)
<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>	5300 psi (373 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>	3 hours
<b>Install Sealer:</b>	Waterborne: 24 hours Solvent-borne or 100% solids epoxy (less than 20 mils/500 microns): 48 hours High build polymer coating (greater than 20 mils/500 microns): 7 days
<b>Packaging:</b>	55 lb. (25 kg) net weight bags
<b>Storage:</b>	Store in a cool dry area. Do not leave bags exposed to sun
<b>Shelf Life:</b>	One year if unopened
<b>Warranty:</b>	ARDEX Engineered Cements Standard Limited Warranty applies.

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