ARDEX K 521™

Self-Leveling Concrete Topping with Aggregate Surface

A blend of Portland cement, hydraulic cements and specialty aggregate

Resurface indoor concrete

Walk on in 2 - 3 hours, polish in as little as 24 hours

Dual water ratio

Use for interior floors only

TESTED IN ACCORDANCE WITH ASTM C 1708

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ARDEX K 521™

Self-Leveling Concrete Topping with Aggregate Surface

Description and Usage

ARDEX K 521™ is a pourable, polishable, self-leveling topping for fast-track resurfacing of indoor concrete. ARDEX K 521 can be installed from a minimum thickness of 3/8" (9 mm) up to a maximum thickness of 2" (5 cm). Use ARDEX K 521 to provide a polished, "aggregate-exposed" surface. Polishing can proceed in as little as 24 hours.

Substrate Preparation

All concrete 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. For more detailed information on substrate preparation, please refer to the ARDEX Substrate Preparation Technical Data Sheet at www.ardexamericas.com.

Mechanically clean down to sound, solid concrete by shot blasting or similar. Overwatered, 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.

Joints and Moving Cracks

Under no circumstances should ARDEX K 521 be installed over any joints or any moving cracks. All existing expansion joints, isolation joints, construction joints and dormant control joints (saw cuts), as well as all 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 521 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" (0.75 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 and proceeding with the installation.

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

For all applications, 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 data sheet.

Recommended Tools

ARDEX T-1 Mixing Paddle; ARDEX T-10 Mixing Drum; ARDEX T-4 Spreader; ARDEX T-5 Smoother; ARDEX T-6 Spiked Roller; ARDEX MB-3.75 Measuring Bucket [3 3/4 quarts (3.55 L) per 50 lb. (22.7 kg) bag]; 1/2" (12 mm) heavy-duty drill (min. 650 rpm) and baseball or soccer shoes with non-metallic cleats.

Mixing and Application

MANUAL MIXING

ARDEX K 521 is mixed two bags at a time. Mix each 50 lb. (22.7 kg) bag with 3 1/2 or 3 3/4 quarts (3.31 or 3.55 L) of clean water (lower water level allows aggregates to be suspended higher in the mix, requiring less processing to achieve aggregate reveal). Pour the water in the mixing drum first, and then add each bag of ARDEX K 521 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 - 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 521 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 521. Mix 1.75 quarts (1.65 L) of ARDEX E 25 with 3 quarts (2.8 L) of water for each bag of ARDEX K 521 following the mixing instructions above. Please note that, if ARDEX E 25 is used, the ARDEX K 521 must first cure 24 hours prior to receiving foot traffic and 48 hours prior to being polished.

APPLICATION INSTRUCTIONS

ARDEX K 521 has a flow time of 10 minutes at 70°F (21°C). Pour the mix onto the substrate and spread with the ARDEX T-4 Spreader. Immediately smooth the material with the ARDEX T-5 Smoother. If desired, use the ARDEX T-6 Spiked Roller to minimize smoother lines and reduce the need to fill aggregate voids. Wear baseball or soccer shoes with non-metallic cleats to avoid leaving marks in the liquid ARDEX K 521.

Thickness of Application

ARDEX K 521 can be installed from 3/8" (9 mm) up to 2" (5 cm).

Required Cure Time

If ARDEX E 25 was used, allow the ARDEX K 521 to cure for 24 hours prior to opening the installation to foot traffic and 48 hours prior to polishing (70°F / 21°C).

If ARDEX E 25 was not used, allow the ARDEX K 521 to cure for 2 - 3 hours prior to opening the installation to foot traffic and 24 hours prior to polishing (70°F / 21°C).

Cracking

ARDEX K 521 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 nonstructural 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. Conditions most likely to lead to crack telegraphing include deflection of a concrete slab; vibration of a concrete slab, such as that due to truck traffic and subways in metropolitan areas; swaying or "racking" of substrates in high rise buildings due to wind; existing cracks in the substrate; control joints or saw-cuts; expansion joints; abutment of dissimilar substrates; embedded metal ductwork and/or 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 overly rapid moisture evaporation from the topping during cure, which tends to happen when ambient humidity in the space is very low and/or air is moved rapidly over the surface of the topping. Hairline cracking also can occur when there is slight substrate movement while the topping cures.

If cracking occurs, we recommend sounding the affected areas to ensure that that the topping is well bonded to the substrate. As long as the topping is well bonded, its overall performance will not be affected. If there is a desire to smooth or mask the appearance of the cracks, please contact the ARDEX Technical Service Department for a recommendation.

Notes

FOR PROFESSIONAL USE ONLY.

ARDEX K 521 wear surfaces are intended for foot traffic. 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 521 is not a resurfacing topping for heavy-duty manufacturing areas 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 521.** Where substrate moisture exceeds the maximum allowed, ARDEX recommends the use of an appropriate ARDEX MC™ Moisture Control System in accordance with the technical data sheet. For further information, please refer to the ARDEX technical data sheet.

ARDEX K 521 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 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 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 521 can be installed over concrete that contains in-floor heating, ARDEX K 521 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 should be allowed to cool, before installing ARDEX K 521.

ARDEX primers may need longer drying times with low surface temperatures and/or high ambient humidity. Do not install ARDEX K 521 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

Physical properties are typical values and not specifications. All data based on a partial, in-lab mix. Mixing and testing completed at 70°F / 21°C and in accordance with ASTM C1708, where applicable.

Mixing Ratio:	3 1/2 or 3 3/4 quarts (3.31 or 3.55 L) of water per 50 lb. (22.7 kg) bag
Coverage:	14 - 15 sq. ft. per bag at 3/8" (1.3 - 1.4 sq. m at 9 mm) 9 - 10 sq. ft. per bag at 1/2" (0.8 - 0.9 sq. m at 12 mm)
Flow time:	10 minutes
Compressive strength (ASTM C109/mod – air cure only):	6,800 psi (476 kg/cm^2) at 28 days
Flexural strength (ASTM C348):	1,300 psi (91 kg/cm^2) at 28 days
Walkable:	2 - 3 hours (without E 25) 24 hours (with E 25)
Polishable:	24 hours (without E 25) 48 hours (with E 25)
Available Colors:	Gray
VOC:	0
Packaging:	50 lb. (22.7 kg) net weight bag
Storage:	Store in a cool, dry area. Do not leave bags exposed to sun.
Shelf life:	9 months, if unopened
Warranty:	ARDEX, L.P. Standard Limited Warranty applies.

Made in the USA.

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IMPORTANT TECHNICAL UPDATES

Technical update effective December 1, 2016:
Installation Environments for ARDEX Polished Concrete Systems (APCS)

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