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# ARDEX GS-4™

## Self-Leveling Repair Underlayment for Distressed Gypsum and Wood Subfloors

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A blend of high strength gypsum and Portland cements as well as powdered polymers

Use over gypsum and wood substrates

Suitable for use with in-floor hydronic and electric radiant heating systems

Use for interior, above-grade floors only

Install up to 2" (5 cm) neat and up to 5" (12.7 cm) with aggregate

Walkable in 3 hours

Install floor coverings in as little as 2 - 3 days



**SystemOne™**

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# ARDEX GS-4™

## Self-Leveling Repair Underlayment for Distressed Gypsum and Wood Subfloors

### Description And Usage

ARDEX GS-4™ Self-Leveling Repair Underlayment for Distressed Gypsum and Wood Subfloors is a blend of high strength gypsum and Portland cements as well as powdered polymers used to repair existing above-grade wood and gypsum floors prior to the installation of new floor coverings. It is recommended for above-grade use over structurally sound substrates and is suitable for use with in-floor hydronic and low-voltage, electric radiant heating systems.

Easy to apply, ARDEX GS-4 mixes with water only to a consistency that is pourable or pumpable, seeks its own level and produces a smooth, flat, hard surface. It also hardens quickly, allowing foot traffic in just 3 hours and the installation of floor covering as soon as the underlayment has dried sufficiently for the floor covering selected (approx. 2 - 3 days, depending on temperature, humidity and installation thickness). ARDEX GS-4 can be installed up to 2" (5 cm) thick neat and up to 5" (12.7 cm) thick with aggregate and can be tapered to match existing elevations.

### 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 Technical Data Sheet at [www.ardexamericas.com](http://www.ardexamericas.com).

### Gypsum

ARDEX GS-4 can be installed over gypsum underlayments that are sound, solid, well bonded and properly primed. For instructions on priming gypsum underlayments, please refer to the Priming section below. The gypsum must be thoroughly clean and free of dirt, debris, sealers and any contaminant that might act as a bond breaker. If necessary, mechanically clean the floor down to sound, solid gypsum by grinding or similar.

Please be advised, however, that a gypsum substrate has inherent weakness. ARDEX GS-4 will provide a solid surface to which new flooring can bond but cannot change the fact that a weak substrate lies below.

### Wood

The wood subfloor either must be solid hardwood flooring; a minimum of 3/4" (19 mm) tongue-and-groove, APA-rated Type 1, exterior exposure plywood; or an approved OSB equivalent. The wood subfloor must be constructed according to prevailing building codes and must be solid and securely fixed to provide a rigid base free of undue flex. Any boards exhibiting movement must be properly fastened to create a sound, solid subfloor. The surface of the wood must be clean and free of oil, grease, wax, dirt, varnish, shellac and any contaminant that might act as a bond breaker. If necessary, sand down to bare wood. A commercial drum sander can be used to sand large areas. Do not use solvents, strippers or cleaners. Vacuum all dust and debris. Open joints should be filled with ARDEX FEATHER FINISH®. It is the responsibility of the installation contractor to ensure that the wood subfloor is thoroughly clean and properly anchored prior to the installation of any ARDEX material.

### Exposure of the Original Substrate

There are jobsite conditions that may require a section of the gypsum to be removed, completely exposing the original substrate. In such cases, ARDEX GS-4 is approved for installation over wood and over small, exposed portions of concrete, non-water-soluble adhesive residue on concrete, ceramic and quarry tiles, epoxy coatings and extruded polystyrene insulation.

Please note that the substrate must be mechanically cleaned of all weak materials and bond-inhibiting contaminants. Once the substrate is prepared, follow the instructions below for priming and installing ARDEX GS-4 over the given substrate. Non-water-soluble adhesives must 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.

## 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-4 Measuring Bucket (4 quarts / 3.8 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 GS-4 before the primer has dried thoroughly.

## Gypsum

Existing gypsum substrates require two applications of ARDEX P 51™ Primer. Make an initial application of ARDEX P 51 mixed with 3 parts water by volume. 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. Let dry thoroughly (1 - 3 hours), and install a second application of ARDEX P 51 mixed 1:1 with water as stated above. Allow primer to dry to a clear, thin film (min. 3 hours, max. 24 hours).

## Wood

Wood subfloors require priming with ARDEX P 51 at full strength (do not dilute). Apply directly to the prepared wood with a short-nap or sponge paint roller, leaving a thin coat of primer. Do not use a push broom. Do not leave any bare spots. Back roll with a dry roller to remove excess primer. Allow primer to dry to a clear, thin film (min. 3 hours, max. 24 hours).

## Exposure of the Original Substrate

In the event that the original substrate is exposed in small areas and is either burnished concrete, terrazzo, ceramic or quarry tiles, non-water-soluble adhesive residue on

concrete or extruded polystyrene insulation, prime these non-porous areas with ARDEX P 82™ Ultra Prime. Follow the mixing instructions in the ARDEX P 82 technical data sheet, 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).

## Above, On and Below Grade

ARDEX GS-4 is for use above grade but may also be used on or below grade over an ARDEX MC™ Moisture Control System. Consult the ARDEX MC technical data sheets for more information.

## Joints and Cracks

Under no circumstances should ARDEX GS-4 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.

## Mixing - Manually

ARDEX GS-4 is mixed two bags at a time. Mix each 50 lb. (22.7 kg) bag with 4 quarts (3.8 L) of clean water. Pour the water in the mixing drum first, and then add the ARDEX GS-4 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 3 - 4 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 GS-4 can be pumped using ARDEX ARDIFLO™ Automatic Mixing Pumps. 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.

## Application

ARDEX GS-4 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 GS-4.

## Thickness of Installation

Install 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 GS-4 can be installed up to 2" (5 cm) thick neat, and up to 5" (12.7 cm) with the addition of proper aggregate. For applications over in-floor, hydronic radiant heating systems, the ARDEX GS-4 must be installed over the tubes to a height that ensures that the tops of the tubes are covered with a minimum of 1/4" of ARDEX GS-4. Please note that the ARDEX GS-4 and floor covering installation must be allowed to cure for 48 hours prior to turning on the hydronic radiant heating system, which should not exceed 85°F (29°C).

To match existing elevations, ARDEX GS-4 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 FEATHER FINISH for transitions.

For areas with a thickness greater than 2" (5 cm), mix ARDEX GS-4 with washed and well-graded 1/8" - 3/8" (3 - 9.5 mm) pea gravel. Please note that the aggregate size must not exceed 1/3 the depth of the pour. Mix the ARDEX GS-4 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 mixed 1:1 with water. Allow the primer to dry (min. 3 hours, max. 24 hours) before installing the neat coat of ARDEX GS-4.

## Wear Surface

ARDEX GS-4 is not to be used as a permanent wear surface, even if coated or sealed. ARDEX GS-4 must be covered by a suitable floor covering material, such as carpet, vinyl flooring, ceramic tile, 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 GS-4 is walkable 2 - 3 hours after installation. Floor coverings can be installed after the underlayment has dried thoroughly. Allow the installation to dry a minimum of 48 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.

Once the installation is deemed dry, prime the entire area with ARDEX P 51 mixed with 3 parts water by volume. Apply the primer as outlined in the Priming section. Allow drying to a clear, thin film (min. 3 hours, max. 24 hours) before applying the thin set mortar or adhesive and floor covering. The application of ARDEX P 51 will help ensure that the adhesive or setting material has sufficient open time prior to placing the floor covering.

Drying time is a function of jobsite temperature and humidity conditions. While a 1/4" (6 mm) thick installation may be dry enough for some types of floor covering after only a few days, additional drying time may be necessary for deeper installations or for the installation of more moisture-sensitive flooring. 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.

## 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 it 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 GS-4.** Where substrate moisture exceeds the maximum allowed, ARDEX recommends the use of ARDEX MC™ Moisture Control Systems. For further information, please refer to the ARDEX technical data sheets 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, including maximum allowable moisture content, adhesive selection and intended end use of the product.

For installations over in-floor, low-voltage, electrical heating systems, please contact the ARDEX Technical Service Department.

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.

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

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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:** 4 quarts (3.8 L) of water per 50 lb (22.7 kg) bag

**Coverage:** 22 sq. ft. per bag at 1/4" (2 m<sup>2</sup> at 6 mm)

Coverage will vary depending on the texture of the surface being smoothed.

**Flow Time:** 10 minutes

**Compressive Strength (ASTM C109/mod – Air cure only):**

5500 psi (385 kg/cm<sup>2</sup>) at 28 days

**Flexural Strength (ASTM C348):**

1500 psi (105 kg/cm<sup>2</sup>) at 28 days

**Walkable:** 2-3 hours

**Install Flooring:**

When confirmed dry via mat testing; estimated 2 - 3 days

**VOC:**

0

**Packaging:**

50 lb. (22.7 kg) 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. Also eligible for the ARDEX/HENRY SystemOne™ Warranty when used in conjunction with select HENRY® Flooring Adhesives.

Made in the USA.

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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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**Visit [www.youtube.com/ARDEX101](http://www.youtube.com/ARDEX101) to watch ARDEX  
GS-4 product demonstration video.**

For easy-to-use ARDEX Product Calculators and Product  
Information On the Go, download the ARDEX App at the iTunes  
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