Ardex K 301 (Model 12435)

Ardex K 301 Exterior Self-Leveling Concrete Topping Instruction Manual

Brand: Ardex | **Model:** K 301 (Model 12435)

1. Introduction

The Ardex K 301 Exterior Self-Leveling Concrete Topping is a high-performance, cement-based compound engineered for smoothing and renewing worn or uneven concrete surfaces. It is suitable for both interior and exterior applications. This product features rapid-hardening technology, allowing treated areas to be reopened within hours, which helps minimize project downtime. It provides superior bond strength and excellent freeze-thaw resistance, ensuring durability and long-lasting performance in various environmental conditions.

Ardex K 301 is ideal for use as a wearing surface or as an underlayment beneath various floor finishes such as tile, luxury vinyl tile (LVT), carpet, and epoxy coatings. It creates a flat, stable, and durable substrate essential for quality installations.

Figure 1: Ardex K 301 Exterior Self-Leveling Concrete Topping 50 lb bag. This image shows the product packaging, a gray bag with the Ardex K 301 logo and product description.

2. Safety Information

Always prioritize safety when working with cement-based products. Failure to follow safety guidelines can result in injury.

- **Personal Protective Equipment (PPE):** Wear appropriate PPE, including safety glasses or goggles, chemical-resistant gloves, and a dust mask or respirator to prevent inhalation of cement dust.
- **Skin Contact:** Avoid prolonged skin contact. Cement can cause irritation or chemical burns. If contact occurs, wash thoroughly with soap and water.
- **Eye Contact:** In case of eye contact, flush immediately with plenty of water for at least 15 minutes and seek medical attention.
- **Inhalation:** Ensure adequate ventilation. If working in enclosed spaces, use forced ventilation. Avoid breathing dust.
- **Ingestion:** Do not ingest. If swallowed, do not induce vomiting. Seek immediate medical attention.

- **Storage:** Store in a cool, dry place, off the ground, and protected from moisture. Keep out of reach of children and pets.

Refer to the Safety Data Sheet (SDS) for complete safety information before use.

3. Setup and Preparation

3.1 Surface Preparation

Proper surface preparation is critical for optimal adhesion and performance of Ardex K 301.

1. **Cleanliness:** The concrete substrate must be clean, sound, and free of all contaminants such as dirt, oil, grease, paint, sealers, curing compounds, and any loose or foreign materials.
2. **Soundness:** All weak or deteriorated concrete must be removed. Repair any structural cracks or defects prior to application.
3. **Profile:** Mechanically prepare the surface to achieve a Concrete Surface Profile (CSP) of 3-5, equivalent to a medium shot blast or scarification.
4. **Moisture:** The substrate must be dry. Conduct moisture testing if necessary.
5. **Priming:** Consult Ardex technical data sheets for specific priming requirements based on the substrate type and condition. Priming is often required to ensure proper bond and prevent pinholes.
6. **Perimeter Control:** Install appropriate perimeter control strips or barriers to contain the self-leveling material within the desired area.

3.2 Mixing

Accurate mixing is essential for achieving the desired flow and strength characteristics of Ardex K 301.

1. **Water Ratio:** Each 50 lb (22.7 kg) bag of Ardex K 301 requires 5 quarts (4.73 L) of clean water. Do not use more or less water than specified.
2. **Mixing Equipment:** Use a heavy-duty drill (650 rpm minimum) with a mixing paddle. A suitable mixing barrel is also recommended.
3. **Mixing Procedure:** Pour the specified amount of water into the mixing barrel. Gradually add the Ardex K 301 powder while continuously mixing. Mix thoroughly for 2-3 minutes until a lump-free, homogeneous mixture is achieved. Avoid over-mixing, which can entrain excessive air.
4. **Batch Consistency:** For multiple batches, maintain consistent water-to-powder ratios to ensure uniform material properties.

Figure 2: Mixing Ardex K 301. A person is shown mixing the Ardex K 301 powder with water in a bucket using a heavy-duty drill and mixing paddle.

4. Operating (Application)

Apply Ardex K 301 immediately after mixing. The working time is limited due to its rapid-hardening properties.

1. **Pouring:** Pour the mixed material onto the prepared and primed substrate in a continuous flow. Work in sections that can be completed within the product's working time (typically 10-15 minutes).
2. **Spreading and Gauging:** Use a gauge rake or screed box to spread the material to the desired thickness. Ardex K 301 can be installed from 1/4 inch (6 mm) to 3/4 inch (19 mm) neat, and up to 2 inches (5 cm) with the addition of appropriate aggregate.
3. **Smoothing:** While the material is still wet, use a smooth-edged tool or a loop roller to gently smooth out any imperfections and release trapped air. Avoid excessive manipulation.
4. **Seamless Application:** For larger areas, ensure that subsequent batches are poured and blended into the wet edge of the previous pour to achieve a seamless finish. This often requires a team of 2-3 people to mix and pour continuously.

Figure 3: Pouring Ardex K 301. A person is pouring the mixed self-leveling concrete from a bucket onto a prepared outdoor surface.

Figure 4: Spreading Ardex K 301. A person is using a long-handled gauge rake to evenly spread the freshly poured self-leveling concrete across the surface.

Figure 5: Finished leveled surface. This image shows a large, smooth, and evenly leveled concrete surface after the application of Ardex K 301.

5. Curing and Finishing

Ardex K 301 is designed for rapid curing, allowing for quick project turnaround.

- **Foot Traffic:** The treated area can typically be opened to light foot traffic within hours, depending on ambient temperature, humidity, and thickness of application.
- **Subsequent Coverings:** Allow the material to cure fully before applying any subsequent floor coverings or coatings. Refer to the Ardex technical data sheet for specific waiting times for various finishes.
- **Protection:** Protect the freshly applied material from direct sunlight, strong winds, and rain during the initial curing period, especially in exterior applications.
- **Compressive Strength:** Ardex K 301 achieves a compressive strength of 4,300 psi (29.6 MPa) after 28 days, meeting ASTM C109 standards.

6. Maintenance

Once cured, Ardex K 301 provides a durable surface. General maintenance practices for concrete surfaces apply.

- **Cleaning:** Regularly sweep or vacuum the surface to remove loose debris. For spills, clean promptly with water and a mild, pH-neutral cleaner. Avoid harsh chemicals or abrasive cleaning tools.
- **Protection:** While durable, protect the surface from heavy impacts or sharp objects that could cause damage.
- **Sealing (Optional):** For enhanced protection and easier cleaning, especially in high-traffic or exterior areas, consider applying a compatible concrete sealer after the Ardex K 301 has fully cured. Consult Ardex for recommended sealers.

7. Troubleshooting

Addressing common issues during application can help ensure a successful outcome.

- **Uneven Surface / Poor Leveling:**
  - **Cause:** Incorrect water-to-powder ratio, insufficient mixing, or application over an improperly prepared or contaminated substrate.
  - **Solution:** Ensure precise water measurement and thorough mechanical mixing. Verify the substrate is clean, sound, and properly primed. Work quickly to maintain a wet edge.
- **Sand/Liquid Separation or Clumping:**
  - **Cause:** Insufficient mixing time, incorrect water ratio, or attempting to work with material past its pot life.
  - **Solution:** Mix for the recommended duration (2-3 minutes) to achieve a homogeneous, lump-free consistency. Adhere strictly to the specified water ratio. Do not attempt to use material that has begun to set.
- **Pinholes or Bubbles:**
  - **Cause:** Air trapped in the mix, porous substrate, or insufficient priming.
  - **Solution:** Avoid over-mixing. Ensure the substrate is properly primed to seal pores. Gently use a loop roller over the freshly poured material to release trapped air.
- **Poor Adhesion:**
  - **Cause:** Inadequate surface preparation (e.g., contaminants, weak substrate, no priming).
  - **Solution:** Thoroughly clean, profile, and prime the substrate as per Ardex recommendations.

- **Rapid Drying / Difficulty Working:**
  - **Cause:** High ambient temperatures, low humidity, or working alone on large areas.
  - **Solution:** Work in cooler conditions if possible. For larger projects, ensure sufficient personnel are available to mix and pour continuously to maintain a wet edge.

8. Specifications

Specification	Value
Product Dimensions	20 x 12 x 4 inches (50.8 x 30.5 x 10.2 cm)
Item Weight	50 Pounds (22.7 kg)
Item Model Number	12435
Brand	Ardex
Color	Gray
Material	Cement-based compound
Mixing Ratio	5 quarts (4.73 L) water per 50 lb (22.7 kg) bag
Coverage (approx.)	23 sq ft at 1/4-inch thickness; 12.5 sq ft at 1/2-inch thickness
Application Thickness	1/4" to 3/4" neat; up to 2" with aggregate
Compressive Strength (28 days)	4,300 psi (29.6 MPa) (ASTM C109)
Reopening Time	Within hours (for light foot traffic)
Freeze-Thaw Resistance	Excellent

9. Warranty and Support

For specific warranty information regarding Ardex K 301 Exterior Self-Leveling Concrete Topping, please refer to the official Ardex website or contact Ardex customer support directly. Warranty terms and conditions may vary.

For technical assistance, product inquiries, or support, please contact Ardex customer service or your local Ardex representative. Always refer to the most current technical data sheets and safety data sheets available from Ardex for detailed and up-to-date product information.

Ardex Americas Contact Information:
Website: www.ardexamericas.com
(Please check the website for current contact numbers and support options.)