

Powerhold™ 850

Advanced Skim Coat



Versatile, trowelable calcium aluminate skim coat and floor patch

- Ideal over concrete, gypsum, metal and wood subfloors and most interior floors, including tile
- Fast setting—floor coverings may be installed in as little as 15 minutes¹
- Innovative formulation offers significant yield advantage vs. competitive products
- No priming necessary over most surfaces²
- Featheredge to 1/2 in. (12.7 mm) thick in large areas; any thickness in small well-defined areas such as thresholds and concave-shaped depressions in substrates
- Easy mixing and smooth finish over various substrates

Notes 1. High humidity, thickness and/or low ambient or substrate temperatures will delay time to floor covering application.
 2. Existing gypsum underlayments require special consideration. See *Notes/Limitations* #21, pg. 6.

Description

Powerhold™ 850 Advanced Skim Coat is a versatile calcium aluminate skim coat and floor patch for interior use over wood, concrete and gypsum subfloors¹. Its versatility allows Powerhold 850 Advanced Skim Coat to be used over most interior floors including ceramic and quarry tile, terrazzo, wood, metal and interior concrete, as well as properly prepared residues of cutback and other non water-soluble adhesives on concrete and epoxy coatings. Simply mix Powerhold 850 Advanced Skim Coat with water and apply with a trowel – no need for priming or a latex additive for most applications.

Note 1. Existing gypsum underlayments require special consideration. See *Notes/Limitations* #21, pg. 6.

Installation

Subfloor Preparation

All subfloors must be structurally sound, stable and solid. If there is any question about the structural soundness of the subfloor, consult with the engineer on the project or request the services of a professional structural engineer.

Subfloors must be clean and free of dirt, tar, wax, oil, grease, latex compounds, sealers, curing compounds, release agents, asphalt, adhesives, paint, chemicals, loose old cementitious products, joint compounds from drywall installation or any other contaminant which might prevent proper bonding of Powerhold 850 Advanced Skim Coat to the host substrate.

Tools

- Mixing bucket
- Trowels
- Razor scraper
- Mixing drill type 2 through 7 – as outlined in the Technical Guidelines, prepared by the International Concrete Repair Institute, *Pictorial Atlas of Concrete Repair Material Mixing Equipment* (Guideline No. 320.5-2014)
- Mixing paddle type 2, 3, 4, 8, or 9 – as outlined in the Technical Guidelines, prepared by the International Concrete Repair Institute, *Pictorial Atlas of Concrete Repair Material Mixing Equipment* (Guideline No. 320.5-2014)

Mixing

Ratio

3 parts Powerhold 850 Advanced Skim Coat to 1 part water by volume, or 2.25 quarts (2.1 L) of water per one (1) 9 lb. (4.0 kg) bag of Powerhold 850 Advanced Skim Coat.

Instructions

To mix a 9 lb. (4.0 kg) bag of Powerhold 850 Advanced Skim Coat, first add 2.25 quarts (2.1 L) of clean water to a mixing bucket, then add the Powerhold 850 Advanced Skim Coat. Mix with a paddle and drill. To mix smaller quantities by hand, use 3 parts Powerhold 850 Advanced Skim Coat to 1 part water by volume. Mix vigorously for 2 to 3 minutes with a trowel to achieve a lump-free consistency. Do not overwater.

Use Powerhold 850 Advanced Skim Coat within 10 – 15 minutes after mixing. Remix (without adding water) as needed within this time frame. Dispose of any Powerhold 850 Advanced Skim Coat once setting has occurred.

Application

During application and until Powerhold 850 Advanced Skim Coat is set typically within 15 – 30 minutes (depending on floor patch thickness and drying conditions), close all doors, windows and other openings in the building and turn off HVAC systems to prevent air drafts. Protect installation areas from direct sunlight exposure during setting time. Thereafter, the HVAC system can resume, as well as the use of doors, windows and other openings.

The subfloor, room temperature and Powerhold 850 Advanced Skim Coat product—either mixed or in powdered form—must be between 50 °F and 95 °F (10-35 °C) at the time of application and for 72 hours after installation of Powerhold 850 Advanced Skim Coat. For temperatures above 95 °F (35 °C), consult Powerhold Technical Services.

It is recommended to patch several small test areas before conducting full installation of Powerhold 850 Advanced Skim Coat. The test areas must also include finish flooring to establish suitability of the complete system for intended use.

Powerhold 850 Advanced Skim Coat has a working time of approximately 10 – 15 minutes at 70 °F (21 °C)/50% RH. At higher temperatures the working time is shortened; at lower temperatures the working time is extended.

Concrete Subfloors

Concrete subfloors receiving cementitious underlayment systems must be cured properly (generally for a minimum of 28 days) prior to underlayment installation. Subfloor moisture vapor emission rate (MVER) exceeding 5 lb. (2.3 kg)/1,000 sq. ft. (92.9 m²)/24 hours per ASTM F1869 must be treated with an appropriate moisture mitigation system that either limits the flooring systems' moisture vapor exposure to acceptable levels, or completely stops the vapor transmission through the top of the subfloor. Powerhold 850 Advanced Skim Coat is not a vapor barrier. Transmission of excessive moisture vapors from the concrete subfloor through Powerhold 850 Advanced Skim Coat can interfere with floor-covering adhesives and compromise their performance. Apply an industry recognized moisture mitigation system, such as USG Durock™ Brand RH-100™ Moisture Vapor Reducer, per manufacturer recommendations to achieve an MVER value of 5 lb. (2.3 kg)/1,000 sq. ft. (92.9 m²)/24 hours or less. Ensure compatibility of the moisture mitigation system with the Powerhold 850 Advanced Skim Coat by a test application in small areas. Contact Powerhold Technical Services 844 USG.FCDA (844 874.3232) for further information regarding suitable moisture mitigation products and systems for use with Powerhold 850 Advanced Skim Coat.

A weak or degraded concrete surface layer must be removed mechanically to provide a solid base. To decide whether mechanical preparation of substrate is required or not, the concrete substrate must be thoroughly assessed for its quality and tensile strength over the entire application area. The assessment of concrete tensile strength must be made in its existing state without the removal of any foreign material that may be present on the concrete surface. Simple visual appearance of concrete substrate as strong and solid does not necessarily guarantee that the concrete substrate is free of impurities and has the right tensile strength.

Concrete exhibiting signs of laitance (a layer of weak material on the concrete surface either visible or invisible), scaling, spalling, crumbling or delamination must be mechanically removed to achieve a solid and clean substrate. Use mechanical removal methods such as shot blasting, scarifying or diamond grinding to clean and prepare the concrete subfloor contaminated with adhesives, asphalt or oil. Shot blasting is the preferred method of mechanically profiling and preparing the concrete subfloor for the application of Powerhold 850 Advanced Skim Coat.

Cracks in the existing concrete subfloor must be inspected to determine if the crack is due to typical concrete “shrink” or if it is a result of a structural movement. In the case of the latter, remediation of the crack must be addressed or eventually the crack will telegraph through Powerhold 850 Advanced Skim Coat. Repair all existing cracks in old and new concrete to minimize and control their ability to telegraph through the layer of Powerhold 850 Advanced Skim Coat. Remove the weak concrete along the length of the cracks by chiseling or other suitable means. Remove accumulated dust and debris from the crack cavities using a HEPA filtration industrial vacuum or other suitable means. Various cracks present in the concrete subfloor including shrinkage cracks must be filled with a suitable commercially available crack-fill epoxy adhesive designed for concrete flooring applications. To ensure superior resistance to crack growth, use injection epoxy crack-repair techniques per manufacturer guidelines to repair cracks that are active or deep. Note that repair of existing cracks in the concrete subfloor only subdues, but does not completely prevent their ability to telegraph through Powerhold 850 Advanced Skim Coat. Growth of existing cracks or formation of new cracks in the concrete subfloor can lead to cracks telegraphing through Powerhold 850 Advanced Skim Coat. Respect existing expansion and control joints (see *Notes/Limitations* #8, pg. 5).

Gypsum Underlayments

Powerhold 850 Advanced Skim Coat can be used over gypsum underlayments. Existing gypsum underlayments must be solid with no cracks and dust-free. Underlayment must be sealed with Powerhold™ 900P Primer. First test surface hardness by scratching existing underlayment with a coin. If surface can be gouged, do not use Powerhold 850 Advanced Skim Coat and consult Powerhold Technical Services for alternative repair methods.

Metal Subfloors

Ensure that metal subfloors are structurally sound, stable, well-supported, rigid, properly anchored and free of undue flex and vibration. (See *Notes/Limitations* #20, pg. 6. Also note that the design criteria for metal deck selection is so the live load deflection does not exceed $L/480$.) Metal subfloors must be clean and free of rust, corrosion or any contaminant that might prevent proper bonding of Powerhold 850 Advanced Skim Coat to the metal subfloor.

Paint steel surfaces with an anti-corrosive coating to prevent rust from recurring. Allow coating to dry thoroughly. Follow coating manufacturer’s instructions, including cure time. An anti-corrosive coating is not necessary for aluminum, copper and lead subfloors.

Next, prime the prepared metal subfloor with Powerhold 900P primer. Mix and apply Powerhold 900P primer as instructed in Powerhold 900P primer submittal (PH5). After primer has dried (approximately 3 hours minimum to 24 hours maximum), Powerhold 850 Advanced Skim Coat may be applied.

Wood Subfloors

Powerhold 850 Advanced Skim Coat can be applied over engineer-approved, APA-Rated exterior glue plywood or oriented strand board (OSB) (i.e., APA-Rated Exterior or Exposure 1 panels) wood subfloors. Subfloor must be properly prepared. See *Notes/Limitations* #20, pg. 6 for subfloor deflections.

Specialty Applications

Check the existing subfloor requirements (see Application section) before applying Powerhold 850 Advanced Skim Coat in a specialty application.

Adhesive Residues

Powerhold 850 Advanced Skim Coat can be installed over non-water-soluble adhesives on concrete only. The adhesive residue must first be tested to make certain it is non-water-soluble. Any water-soluble adhesive residues must be mechanically removed down to clean concrete. Non-water-soluble adhesive residues should be prepared to a thin, well-bonded residue using the "wet-scraping" technique as recommended by the Resilient Floor Covering Institute's Recommended Work Practices for Removal of Resilient Floor Coverings (rfci.com) to remove thick areas and adhesive build-up, as well as any areas that are weak or not well bonded to the concrete. Any existing patches below the adhesive must be completely removed.

Cut-Back Adhesive Residues

To use Powerhold 850 Advanced Skim Coat over cut-back adhesive residue, first remove all loose debris from the cut-back.

Spread dry Powerhold 850 Advanced Skim Coat over the cut-back adhesive then work the dry powder into the floor with a broom. Next, scrape the cut-back down to as thin as possible prior to skim-coating the area with properly prepared Powerhold 850 Advanced Skim Coat.

Epoxy Coatings

All epoxy coatings must be solidly bonded to the existing substrate and clean and sound. Weak or degraded concrete surface layer must be removed mechanically to provide a solid base. See Application, Concrete Subfloors on page 2 for further information.

After a solid base has been achieved, prime the epoxy with Powerhold 900P primer. Mix and apply Powerhold 900P primer as instructed in Powerhold 900P primer submittal (PH5). After primer has dried (approximately 3 hours minimum to 24 hours maximum), Powerhold 850 Advanced Skim Coat may be applied.

Floor-Covering Installation

- Powerhold 850 Advanced Skim Coat may be ready for floor covering in as little as 15 minutes after application (at 70 °F (21 °C)). Drying time is dependent on job site temperature and humidity conditions as well as application thickness. For example, high humidity and/or low substrate temperatures will extend dry times.
- Floor coverings such as ceramic tile, VCT, sheet vinyl and carpeting can be installed as soon as Powerhold 850 Advanced Skim Coat can be worked on without damaging the surface.
- Nonbreathable floor coverings that are sensitive to moisture; floor coverings requiring high-performance adhesives such as urethanes or epoxies; and wood flooring can be installed after 16 hours.
- Check with floor-covering and adhesive manufacturers for installation guidelines and suitability of their manufactured products over Powerhold 850 Advanced Skim Coat.
- Protect the surface of Powerhold 850 Advanced Skim Coat from contaminants and water until installation of floor covering is accomplished.
- Perform field bond test to determine adhesive/flooring performance over Powerhold 850 Advanced Skim Coat. Install floor covering with adhesive and perform field bond test approximately 72 hours after installation.
- Follow floor-covering manufacturers' recommendations for surface sealing requirements. If the floor-covering or adhesive manufacturer requirements are more stringent, their requirements take precedence.

Notes/Limitations

1. Do not use in exterior applications.
2. Do not use as a wearing surface.
3. Do not install where continuous exposure to moisture is a possibility.
4. Do not install over dimensionally unstable, improperly prepared, weak subfloors.
5. Do not install over concrete subfloor less than 28 days old. For untreated (without an approved moisture mitigation system) concrete subfloors less than 28 days old, contact Powerhold Technical Services.
6. For below-grade applications, contact Powerhold Technical Services.
7. Do not apply directly to sound mat.
8. Do not use over expansion or isolation joints. Continue all movement joints in the concrete slab up through the layer of underlayment. In areas where the expansion or isolation joints are not present in the floor or where the concrete slab has developed systematic cracks in response to slab movement, consult with an engineer on the project or request services of a professional structural engineer to provide such joints as part of the system in accordance with engineering requirements and industry standards.
9. Existing cracks in the new and old concrete must be repaired with an appropriate crack repair material in accordance with industry recommendations prior to installation of Powerhold 850 Advanced Skim Coat. Note that repair of existing cracks in the concrete subfloor only subdues, but does not completely prevent their ability to telegraph through Powerhold 850 Advanced Skim Coat. Growth of existing cracks or formation of new cracks in the concrete subfloor can lead to cracks telegraphing through the poured underlayment.
10. When the MVER exceeds 5 lb. (2.3 kg)/1,000 sq. ft. (92.9 m²)/24 hours, then treat the concrete subfloor with an industry recognized moisture mitigation system, such as USG Durock™ RH-100 Moisture Vapor Reducer, in all areas of use where potential for moisture problems may exist. Powerhold 850 Advanced Skim Coat is not a vapor or moisture barrier. Transmission of excessive water vapors or moisture from the concrete subfloor through the Powerhold 850 Advanced Skim Coat can interfere with floor-covering adhesives and compromise their performance.
11. For on-grade applications, use an industry recognized moisture mitigation system, such as USG Durock™ RH-100 Moisture Vapor Reducer, over concrete. Moisture mitigation system may not be needed if a vapor retarder is installed below the concrete slab in accordance to industry specifications and practice (ASTM E1745, ASTM E1993, and ASTM E1693) and the MVER value of the concrete slab is below 5 lb. (2.3 kg)/1,000 sq. ft. (92.9 m²)/24 hours.
12. Do not use acid etching as a method of cleaning and preparing the concrete subfloor.
13. Do not use oil-based sweeping compounds to clean and prepare the concrete subfloor. Use of such sweeping compounds leaves an oil film on the surface of the concrete that will interfere with the underlayment's bond development. Use vacuum, compressed air or a dry broom to remove the dust and debris and prepare the subfloor for Powerhold 850 Advanced Skim Coat application.

14. Do not use adhesive-removing chemicals or solvents to eliminate contaminants from the concrete subfloor. Use of such chemicals can transport oil, grease, and other contaminants further into the concrete pores. These chemicals can be released back to the surface at a later time to interfere with the floor-covering adhesives thus compromising the bond performance with Powerhold 850 Advanced Skim Coat. Mechanically removing the organic adhesives, asphalt, coal-tar based adhesives and other oil-based contaminants is the sole recommended method of preparing the subfloor for application of Powerhold 850 Advanced Skim Coat.
15. For applications over materials containing asbestos, contact Powerhold Technical Services. Do not mechanically remove organic adhesives, asphalt, coal-tar based adhesives or other materials containing asbestos—contact an asbestos abatement professional.
16. Do not overwater or over mix.
17. Do not add any chemical additives or polymers to Powerhold 850 Advanced Skim Coat.
18. Existing curing compounds on concrete surfaces must be removed. Shot blasting is the only recommended method of removal.
19. Do not mix with other cementitious products or self-leveling materials.
20. Structure shall be designed so that deflection does not exceed $L/240$ from combined dead and live loads and $L/360$ from live loads. Certain floor coverings such as marble, limestone, travertine and wood may have more restrictive deflection limits. Consult the appropriate floor-covering manufacturer.
21. Existing gypsum underlayments must be solid with no cracks and dust-free. Gypsum underlayment must be sealed with Powerhold 900P primer. First test surface hardness by scratching existing underlayment with a coin. If surface can be gouged, do not use Powerhold 850 Advanced Skim Coat and consult Powerhold Technical Services for alternative repair methods.

Product Data

Mixing Ratio: 9 lb. (4.0 kg) bag Powerhold 850 Advanced Skim Coat to 2.25 quarts (2.1 L) of water
(3 parts Powerhold 850 Advanced Skim Coat to 1 part water by volume)

Approximate Coverage: Up to 76 sq. ft. (7.1 m²) at 1/16 in. (1.6 mm) thickness
Up to 38 sq. ft. (3.5 m²) per bag when applied at 1/8 in. (3.2 mm) thickness
Up to 19 sq. ft. (1.7 m²) per bag when applied at 1/4 in. (6.4 mm) thickness

Approximate Working Time: 10 – 15 minutes

Application of Floor Covering: In as little as 15 minutes or when Powerhold 850 Advanced Skim Coat can be worked on without damaging the surface. Drying time is dependent on job site temperature and humidity conditions as well as application thickness.

Thickness Range: Featheredge to 1/2 in. (12.7 mm) thick in large areas; any thickness in small well-defined areas such as thresholds and concave-shaped depressions in substrates.

Packaging: 9 lb. (4.0 kg) multiwall paper bags

Note

Physical characteristics published herein were achieved under controlled laboratory conditions. Actual field results may differ due to environmental conditions, inconsistent proportioning of field applied water and Powerhold 850 Advanced Skim Coat, as well as differences in mixing equipment.

Storage

Powerhold 850 Advanced Skim Coat should be stored in an enclosed shelter providing protection from damage and exposure from the elements. During winter, dry mix material should be stored in a heated room before application, as deeply cooled material may increase the risk that some additives may not dissolve during mixing. If temperature is too high, premature setting may occur. Protect unused material by removing air from bag and sealing tightly. Remove damaged or deteriorated materials from the job site. Powerhold 850 Advanced Skim Coat has a shelf life of 9 months from the manufactured date when in original unopened packaging.

Submittal Approvals

Job Name	
Contractor	Date

Product Information

See powerhold.com for the most up-to-date product information.

DANGER!

Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause respiratory irritation. May cause cancer by inhalation of respirable crystalline silica. Do not handle until all safety precautions have been read and understood. Avoid breathing dust. Use only in a well-ventilated area, wear a NIOSH/MSHA approved respirator. Wear protective gloves/protective clothing/eye protection.

If swallowed, inhaled, or skin irritation occurs get medical attention. If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses and continue rinsing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Dispose of in accordance with local, state, and federal regulations. For more information call Product Safety: 800 507-8899 or see the SDS at usg.com.

KEEP OUT OF REACH OF CHILDREN.

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Safety First!

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

