



1. PRODUCT NAME

Ashford Formula™

2. MANUFACTURER

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3. PRODUCT DESCRIPTION

Basic Use

The Ashford Formula, the leading product used in concrete densification since 1949, is a transparent, chemically reactive, water-based sealer that penetrates concrete and masonry building materials, protecting, preserving and strengthening them permanently by:

- **Curing** - the Ashford Formula controls hairline checking on new concrete by quickly stabilizing the surface. When applied to properly placed, structurally sound, freshly finished concrete, the Ashford Formula will uniformly cure the concrete through a combined chemical/moisture retention reaction vital to the complete hydration process.
- **Sealing** - the Ashford Formula penetrates deep into the concrete, forming a chemical reaction that locks the pores from within, providing a deep permanent seal on all types of concrete surfaces.
- **Hardening** - the Ashford Formula solidifies the component parts of the concrete into one solid mass, increasing the density, toughness, hardness and substantially increasing the abrasion resistance and durability of the concrete surface. Smooth steel-troweled surfaces develop a marble-like finish and sheen. The Ashford Formula treated concrete has been compressively tested 38% harder after 30 days than fully cured untreated concrete.
- **Dustproofing** - the Ashford Formula chemically locks in calcium hydroxide, which normally causes dusting on concrete floors.
- **Neutralizing Alkali** - as the Ashford Formula progressively penetrates the concrete, it neutralizes the alkalis, forcing them to the surface where they can be washed away during the application. Under normal conditions, the alkalis are locked in, and efflorescence and the leaching of lime and alkalis stop. In cases of excessive moisture and/or extreme hydrostatic pressure, this reaction may not be able to stop all salts from migrating to the surface.

- **Bonding** - the Ashford Formula prepares the treated surface for paints, caulking compounds, adhesives and floor coverings by eliminating the surface concrete salts that are detrimental to proper bonding. The Ashford Formula contains no silicone and is coatable and compatible with any type of covering when standard surface preparation guidelines are followed.

With one application of the Ashford Formula, concrete or other masonry is cured and permanently sealed for its lifetime, and is resistant to oils, greases and other surface contaminants. The component parts of the concrete are solidified into a solid mass that hardens and increases the density. Surface alkalis are neutralized, and efflorescence and the leaching of lime and alkalis are mitigated. Treatable materials include concrete, heavyweight concrete block, mortar, plaster, stucco, terrazzo, exposed aggregate and any sand-aggregate-portland cement combination. Ideal applications include warehouses, distribution facilities, aviation hangars, manufacturing plants, food processing and distribution buildings, pulp and paper mills or other types of facilities with exposed concrete floors.

Composition & Materials

The Ashford Formula complies with all USDA regulations and is nontoxic, noncombustible and nonflammable. When applied properly, it is not harmful to lungs or hands. It contains no volatile organic compounds (VOCs).

Sizes

The Ashford Formula is available in 55 US gallon (208 L) drums and 5 US gallon (19 L) pails.

Color, Finish

The Ashford Formula is clear and will not change the natural appearance of masonry or concrete. Where alkali, lime and other impurities are forced to the surface and the natural appearance is to be preserved, all treated surfaces must be flushed clean with clear water in accordance with manufacturer's instructions.

On smooth steel-troweled concrete surfaces, a natural wax-like sheen will appear between 6-12 months after treatment. This can be accelerated by burnishing after curing. The sheen is caused by the hardening and sealing effects of the Ashford Formula, as well as by the abrasion from cleaning and use of the floor. A routine cleaning program using a floor scrubber with abrasive-type brushes will accelerate and enhance the sheen. The sheen will last the lifetime of the surface.

Benefits

- Reduces or eliminates hairline cracks in new concrete.
- Only one application creates a permanent seal that is solid, rather than porous, on all types of concrete surfaces.

TABLE 1 PHYSICAL/CHEMICAL PROPERTIES

Abrasion Resistance (ASTM C779)	At least 32.5% increase at 30 minutes
Surface Adhesion (ASTM D3359)	At least 22% increase in epoxy adhesion; no change for polyurethane adhesion
Curing	At least 93% greater moisture retention during the initial critical 24 hour curing period compared to untreated samples
Compressive Strength (ASTM C39)	At least 40% increase in compressive strength at 7 days compared to untreated samples At least 38% increase at 28 days compared to untreated samples
Impact Resistance (ASTM C805)	At least 13.3% increase in impact resistance compared to untreated samples
Permeability	0.00073 oz. (0.022 cc)/hour seepage rate using a 7' (2.13 m) head of water and a 4.91 in ² (3168 mm ²) treated area
Coefficient of Friction (ASTM C1028)	Dry - 0.86 Wet - 0.69
Weathering (ASTM G23)	Ultraviolet light and water spray exposure had no adverse effect on treated samples

- Hardens and strengthens within the concrete mass, protecting against deterioration and producing a floor that is resistant to traffic; rather than eroding, the floor surface actually self-polishes with use.
- Treated surface resists dust, oils, greases and other surface contaminants, such as tire marks.
- Effective curing agent when applied immediately after the finishing operation; stabilizes and significantly enhances abrasion resistance and durability of surface.
- Eliminates dusting, which enhances surface bonding of paints, caulking compounds, adhesives and floor coverings.
- Compatible with any type of covering when standard surface preparation guidelines are followed.
- Covers approximately 200 ft²/gallon (5 m²/L), depending on concrete temperature and porosity.
- Thinners not required. Equipment is cleaned using water only.

Limitations

- The Ashford Formula is not to be used to seal lightweight block or other extremely porous masonry that contains actual holes and air pockets.
- The Ashford Formula is not for application over areas previously treated with curing or sealing agents unless these coatings have been removed by chemical or mechanical means.
- On concrete that is abnormally porous or soft, additional applications of the Ashford Formula may be required. This also applies to surfaces with open finishes, such as broom finished or scarified floors.
- At standard coverage rates, the Ashford Formula cannot resolve dusting or erosion problems related to over-troweling, carbonation or poor surface water-to-cement ratio. Additional material can, but not always, resolve these problems.
- The Ashford Formula should not be used as a curing agent when Type K shrinkage compensation cement is used or when shrinkage reducing admixtures with hydrophobic properties are used.

- Non-chloride admixtures are recommended as calcium chloride can cause heavy salt deposits on the surface and produce unpredictable effects on the concrete color.
- Concrete mix designs with over 15% total combined pozzolanic materials (fly ash, granulated blast furnace slag, silica fume, etc.) of the total cementitious material will be warranted for hardening and dustproofing only.
- In cases of excessive moisture and/or extreme hydrostatic pressure from beneath the slab, this reaction does not prevent excessive salt migration.

4. TECHNICAL DATA**Physical/Chemical Properties**

See Table 1.

Applicable Standards

ASTM International (ASTM)

- **ASTM C39** - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- **ASTM C779** - Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces
- **ASTM C805** - Standard Test Method for Rebound Number of Hardened Concrete
- **ASTM C1208** - Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method
- **ASTM D3359** - Standard Test Methods for Measuring Adhesion by Tape Test
- **ASTM G23** - Practice for Operating Light Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Non-Metallic Materials (Withdrawn 2000)

5. INSTALLATION**Preparatory Work**

Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact. Store materials

protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer. Storage life is 2 years.

Verify that site conditions are acceptable for installation. Do not proceed with installation until unacceptable conditions are corrected.

On existing concrete, remove all surface coatings. To remove dust, dirt and contamination from areas to be treated, sweep surface using a fine bristle broom, or scrub hose off with water and let dry.

The Ashford Formula can be applied to damp surfaces as long as all puddled areas are swept away. This prevents the product from becoming diluted before it is able to penetrate the surface.

Methods

The Ashford Formula may be applied on new concrete by owners, contractors or qualified applicators. If owners or their contractors apply the material, Curecrete Distribution, Inc. recommends that a field technician be on hand for the initial application to provide guidance and ensure the application is done correctly. The field technician is available to assist if there are additional questions or concerns. On existing concrete, Curecrete Distribution, Inc. recommends that only qualified applicators prepare the surface and apply the material. Outside of the United States, the Ashford Formula can be applied only by certified applicators.

New Concrete

Apply product immediately following the finishing operation, as soon as the surface is firm enough to walk on and before hairline checking and temperature cracking begin. Curecrete Distribution, Inc. recommends application using a low-pressure, high-volume pump that will dispense material at 40-70 psi (276-483 kPa) and roughly 3-5 gallons (11-19 L) per minute. Keep the entire surface wet with the Ashford Formula for 30 minutes, working it into the concrete surface with a soft-bristled broom.

As the Ashford Formula becomes slippery underfoot, lightly mist the surface with water. As it again becomes slippery underfoot, thoroughly flush the entire surface with water and squeegee it completely dry to remove all surface alkali and/or Ashford Formula residue.

On exterior broom-finished surfaces, no flushing is required, but any remaining Ashford Formula must be squeegeed or broom-swept from the surface after 30-40 minutes.

Newly placed concrete requires the normal hardening period. Allow 30 days for proper curing before applying paint or covering.

Old Concrete/All Cured Surfaces

Spray with a low pressure sprayer or pour and brush with a soft-bristled broom to saturate the entire surface with the Ashford Formula. Keep the surface wet with the Ashford Formula for 30 minutes.

- **Option 1** - If the majority of the Ashford Formula has been absorbed into the surface after 30-40 minutes, broom or squeegee any excess material from all low spots and puddles so that all remaining Ashford Formula is entirely absorbed into the concrete or is totally removed from the surface.

- **Option 2** - If after 30-40 minutes the majority of the Ashford Formula is still on the surface, wait until it becomes slippery underfoot, then thoroughly flush the entire surface with clear water; squeegee completely dry to remove all Ashford Formula residue.

The surface can be used as soon as it is again dry to the touch and the application is complete. Allow 3-7 days before applying paint or coverings.

Tilt-Wall Applications/Vertical Surfaces

Instructions for tilt-wall applications and vertical surface applications are available online at www.ashfordformula.com.

Precautions - Performance, Safety

Performance

- Apply product with low pressure sprayer only. Do not use airless sprayers, as they atomize the material, allowing inhalation which may pose a health hazard.
- Diaper all construction equipment components that might drip oil, hydraulic fluid or other liquids.
- Apply the Ashford Formula to colored concrete only after the slab is fully cured unless using a certified applicator.
- Prevent the Ashford Formula from getting on glass or other finished surfaces. If this occurs, immediately wipe with a damp cloth or flush the affected surface immediately. When applying near windows, mask the glass.
- Do not apply the Ashford Formula when the temperature falls below 35°F (1.7°C).
- Protect new concrete from freezing for a period of 6 days.
- If the Ashford Formula becomes frozen, thaw and agitate before using.

Safety

- If taken internally, do not induce vomiting. Drink large amounts of milk or water. Consult a physician immediately.
- May cause eye and mucous membrane damage. Avoid contact with eyes and mucous membranes. If contact occurs, flush with water for 15 minutes.
- Surfaces treated with the Ashford Formula temporarily become slippery during application. Exercise care and caution to avoid falls.

Building Codes

Installation must comply with the requirements of all applicable local, state and federal code jurisdictions.

6. AVAILABILITY & COST

Curecrete Distribution, Inc. has inventory facilities throughout the United States, allowing for next day delivery to more than 95% of all U.S. zip codes, as well as same day service in some areas. Contact the manufacturer for local availability information.

Cost

The Ashford Formula is competitively priced. For specific price information, contact Curecrete Distribution, Inc.

7. WARRANTY

Curecrete Distribution, Inc. warrants that a properly prepared and structurally sound concrete or masonry surface treated with the Ashford Formula according to the manufacturer's directions will remain dustproof, hardened and water repellent for 20 years*. If the treated surface does not remain dustproof, hardened and water repellent after the specified sealing period, Curecrete Distribution, Inc. will supply, at its own expense, sufficient Ashford Formula to reseal any defective area. This warranty does not apply if the Ashford Formula is improperly applied or if structural faults occur due to faulty workmanship, improper design or failure of materials other than the Ashford Formula. Complete warranty terms and conditions are available from the manufacturer. Cleaning exclusively with CreteClean Plus with Scar Guard can extend an Ashford Formula standard warranty to a lifetime warranty. For details, consult Curecrete Distribution, Inc.

*Note: Concrete mix designs with over 15% total combined pozzolanic materials (fly ash, granulated blast furnace slag, silica fume, etc.) of the total cementitious material will be warranted for hardening and dustproofing only.

8. MAINTENANCE

Scrub the floor often. The abrasion polishes the floor and enhances the shine. Frequent scrubbing with detergent and ample water will accelerate the sealing process.

CreteClean Plus with Scar Guard™, available exclusively from Curecrete Distribution, Inc., is the recommended maintenance product for floors treated with the Ashford Formula.

Avoid detergents containing sulfates and hydroxides (caustic soda) to clean the floor. Acidic cleaners or sweeping compounds will dull the surface appearance.

Clean spills quickly. Highly concentrated acid may etch the surface if left in contact with the floor. Foods such as mustard and grape juice may leave a residual stain if not removed immediately.

Keep a good emulsifier on hand to clean up oil, grease or fats.

Waxing or coating with other products is unnecessary and is not recommended.

9. TECHNICAL SERVICES

Technical assistance, including more detailed information, product literature, test results, project lists, guidance in preparing project specifications and arrangements for application supervision is available by contacting Curecrete Distribution, Inc.

10. FILING SYSTEMS

- MANU-SPEC®
- Additional product and application information is available from the manufacturer upon request. Call toll free 1.800.998.5664 or visit www.ashfordformula.com.