Direct Colors Coffee Brown and Malayan Buff Acid Stains (Photo Courtesy of Decocrete)

1. Product Name
Direct Colors Concrete Acid Stain System

2. Manufacturer
Direct Colors, Inc.
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3. Product Description

BASIC USE

Direct Colors Concrete Acid Stains are designed to enhance the appearance of concrete and other surface materials. It has been proven in thousands of commercial and residential applications to create a beautiful and unique flooring surface.

Direct Colors Acid Stains, Sealers and other products produce unusual and permanent color effects in concrete, self-leveling topping systems, gunite, cement plaster, stucco, shotcrete, natural stone marble, cultured stone, limestone and other surfaces. Each concrete acid stain creates uneven color effects that simulate the natural shadings and aged appearance of stone or masonry. The color effect is unique to each stained surface and cannot be duplicated with other materials.

COMPOSITION & MATERIALS

Direct Colors Concrete Acid Stains are composed of a unique formulation of blended metallic salts in an acidic water-based solution. These metallic salts penetrate and react with the chemical substance in the concrete to deposit the colors into the concrete pores. Each color is composed of a complex proprietary formulation that contains no pigments or resins. When highlighted with the proper sealer, this effect provides a natural, attractive glow.

SIZES

Direct Colors Concrete Acid Stains are available in 1 qt (0.95 L), 1 gal (3.8 L), 5 gal (18.9 L) and 55 gal (208 L) containers. Water and solvent based, high gloss, sprayable satin finished acrylic sealers are available in 1 gal (3.8 L), 5 gal (18.9 L) and 55 gal (208 L) containers.

Water-based Residential and Commercial Waxes for interior applications are available in 1 gal (3.8 L), 5 gal (18.9 L) and 55 gal (208 L) containers.

Coverage: (Depending upon sealer choice and surface conditions)

- Acid Stain/Sealer - 200 ft^2/gal (5 m^2/L) - applying two coats
- Wax - 1500 ft^2/gal (37.5 m^2/L) aplying one coat

COLORS

Direct Colors Concrete Acid Stains are available in 10 standard colors (see Table 1) that can be viewed online at www.directcolors.com. Also included online are photographs of each color, as used in actual applications.

As a translucent product, the overall effects of the stain system leave an element of unpredictability as to the final appearance and effects of the applied stain. For this reason, the color chart is to be used as a guideline only. Testing small areas or samples prior to job application is always recommended since the final color may differ significantly from what is shown on the chart. The difference is due to a number of factors, including, but not limited to, the age of the existing slab, mix design, finishing techniques, concrete base colors and surface permeability.

Acid stain can be diluted with water to lower the ratio of minerals, thus making the color lighter in shade. The best option is to test patch the concrete using straight stain and stain that has been diluted to 2 - 3 parts water to 1 part stain. If the water content is too high, the acid

TABLE 1 COLORS

Color	First Appearance of Color	Final Appearance	Time Required on Surface
Azure Blue	Light Blue	Medium Blue	2 hours
Coffee Brown	Greenish Brown	Dark Brown	2 hours
Cola	Greenish Brown	Brownish Red	2 hours
Avocado	Greenish Brown	Greenish Yellow	2 hours
Black	Dark Brown	Black	3 - 4 hours
Malayan Buff	Greenish Black	Buff	8 hours
English Red	Greenish Brown	Reddish Brown	4 hours
Shifting Sand	Dark Brown	Dark Greenish Brown	4 - 5 hours
Sea Grass	Light Green	Greenish Brown	4 - 5 hours
Desert Amber	Light Yellow	Golden Yellow	7 - 8 hours

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SmartBuilding Index

Cola and Coffee Brown Concrete Acid Stain (Photo Courtesy Southeasten Building Maintenance)

will not facilitate the chemical reaction required to make the color. This can be corrected by raising the acid content or using stain extender. Some colors vary more by adding water, but many factors, including age of the concrete, cement content and weathering determine how light or dark the stain will appear. This is another reason to conduct as many pre-stain tests as the jobsite will allow.

During the application process, concrete acid stains can be blended together on the concrete slab at full strength or diluted to achieve beautiful marbling effects with diverse high and low lights.

Different stains require varying amounts of time to activate and fully color the concrete, generally from 2 - 8 hours. See Table 1 for details. Be sure to check stain activation time before starting the job to ensure full surface coloring. For the most color from a given stain, spray another coat over the dried residue.

BENEFITS

- Provides superior durability and abrasion resistance to acrylic stains or other types of paint that can wear or delaminate
- Will not chip, crack, peel or fade
- Variegated finish offers numerous appearance variations
- Suitable for use on cement based materials and natural stone, marble, limestone and other substrates
- High quality, affordable price
- Outstanding customer service and technical support

LIMITATIONS

- Concrete that has been acid etched or washed with muriatic acid cannot be acid stained
- Acid stain will only work on the cement portion of the concrete and will not stain rocks or sand
- Acid stain is an opaque recoloring of concrete. Spots will show through if not removed, especially mastic, drywall mud and paint, as these permeate the concrete pores and block the staining process
- The 10 standard colors shown are designed for application only to gray or white cement-based products
- Azure Blue and Avocado Concrete Acid Stains should never be applied to a wet or damp surface, as this will produce a black or brown spotted appearance to the surface. Refer to the Concrete Acid Stain technical data sheets for additional information
- Azure Blue and Avocado Concrete Acid Stains are recommended for indoor projects only

4. Technical Data

APPLICABLE STANDARDS

National Fire Protection Association (NFPA) Hazard Index

- Health - Very short exposure could cause serious temporary or residual injury requiring immediate attention

TABLE 2 PHYSICAL & CHEMICAL PROPERTIES

Concrete Acid Stain Color	Appearance	pH	Solubility (in water)	Freezing point	Boiling point	Relative density	Environmental toxicity
Avocado	Green	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.18	Severe marine pollutant
Azure Blue	Blue-green	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.18	Severe marine pollutant
Black	Black	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.22	Moderate toxicity to aquatic life
Coffee Brown	Brown	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.22	Moderate toxicity to aquatic life
Cola	Dark brown	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.21	Moderate toxicity to aquatic life
English Red	Amber	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.18	Moderate toxicity to aquatic life
Malayan Buff	Pole green	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.18	Moderate toxicity to aquatic life
Shifting Sand	Dark greenish-brown	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.18	Severe marine pollutant
Desert Amber	Golden yellow	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.18	Moderate toxicity to aquatic life
Sea Grass	Light greenish-brown	< 1	Completely soluble	32° F (0° C)	226° F (108° C)	1.18	Severe marine pollutant

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Desert Amber and Cola Concrete Acid Stains (Photo Courtesy of Concrete Creations)

- Flammability - 0; will not burn
- Reactivity - Normally stable, but can become unstable at elevated temperatures and pressures or can react non-violently with water
- Specific hazards - Corrosive

APPROVALS

Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200

PHYSICAL/CHEMICAL PROPERTIES

See Table 2.

ENVIRONMENTAL CONSIDERATIONS

See Table 2.

5. Installation

PREPARATORY WORK

Deliver products in the manufacturer's original, unopened, undamaged containers with identification labels intact. Store tightly closed and upright in a cool, dry, well-ventilated area, out of direct sunlight, away from heat sources and at temperature and humidity conditions recommended by the manufacturer. Store away from incompatible materials, such as oxidizing materials, reducing materials and strong bases. Keep storage area separate from populated work areas and rotate the inventory when storing. The typical shelf life of concrete acid stain is 1 year from date of purchase.

Verify that site conditions are acceptable before installation. Do not proceed with installation until conditions are ideal.

Remove previous coatings, adhesives or other treatments with an appropriate stripping product. Remove all debris, dirt and oils. For old or exposed concrete, ensure the concrete surface is intact and without exposed aggregate. Often, surfaces inside an existing structure will have drywall mud, paint, wood stains, tile adhesives, carpet adhesives, grease, pet stains and other contaminants on the concrete. Adhesive removers, such as Beanedoo, and paint strippers, such as Soy Gel Professional Paint Stripper, can be used to remove these products from the surface. A fine sanding pad on a floor buffer can even out the surface and reopen the pores of distressed concrete. These types of distressed floors will nearly always yield a varied finish character with a high degree of color difference from area to area across the surface and lend character and depth to the floor.

Use an organic degreaser at a medium concentration to clean, scrubbing the surface thoroughly with a nylon brush and rinsing with clear water. For interior projects where water runoff is not acceptable, use a shop vacuum and mops or squeegees to contain the water and aid in drying. Be sure all soap and cleanser residue is removed from concrete before staining and that the surface is adequately dried.

For a more even finish, consider an overlay resurfacing, especially on a floor that has had glued tile or glued plastic carpet. DCI Overlay, available in both gray and white, can be acid stained as easily as the original concrete slab, with the same finish results.

METHODS

Applying Stain

Apply stain as needed for project requirements in accordance with manufacturer's directions. Divide the work area into manageable sections along natural dividing lines, such as walls, joints or other features.

Apply stain at the recommended coverage rate to a uniform film thickness.

For vertical, statuary, stenciling or freehand artwork acid stain projects, use Direct Colors Deco Gel™ Gelled Concrete Acid Stain. Deco Gel combines acid stain with a stabilizer to produce a staining product similar in consistency to acrylic paint. Deco Gel provides the same attractive finish as standard acid stains, without drips or runs, and is ideal for any garden decor, stenciling or vertical surface project.

Concrete Acid Stain application tools can include an all-plastic pump sprayer, a backpack sprayer with a cone nozzle, brushes, spray bottles and other materials to create different designs and appearances. Deco Gel Gelled Concrete Acid Stain can be applied using sponges, paint brushes, foam rollers or small plastic trowels, depending upon the project and desired finish.

Allow surfaces to remain undisturbed for at least one hour before applying a second coat of stain. Unless wearing acid stain resistant spiked shoes, surface residue should be dry before applying a second coat of acid stain.

Removing Residue

After the residue has dried, and the stain has been given the proper time to process, neutralize the residue and remove all debris from the surface to obtain the best possible acid stain appearance. Prepare a base solution using baking soda at about half a cup of soda per gallon of water. Pour this on the residue, scrubbing with a mop-handled nylon scrub brush and shop vacuum the residue while it is wet.

Repeat the process using plain water. Allow the floor to dry. After this step, only a very light residue should remain indicated by some lighter coloring on the surface. Using a clean, damp mop, wipe away any remaining trace of residue on the surface. Allow the surface a minimum of 24 hours to dry before sealing.

Sealing the Surface

After the floor is dry, seal the acid stain with a proper decorative sealer. The sealer may be applied with a sprayer or sealer applicator, such as a Padco floor coater or trim pad, in accordance with manufacturer's directions.

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Direct Colors, Inc.

Direct Colors Black Acid Stain (Photo Courtesy of Decocrete)

This is the smoothest, easiest method of applying the finish and is recommended for homeowners or do-it-yourselfers.

Applying two thin, even coats of sealer using this method is a reliable way to achieve a high quality, trouble-free application.

Krystal Kote™ High Performance Cross-Linking Water Based Concrete Sealer dries smooth and flat to the floor surface. With complete coverage, two thin coats can dry in 24 - 48 hours for foot traffic and 72 hours for vehicle traffic, depending on humidity and temperature. Krystal Kote resists the following chemicals: Formula 409, gasoline, brake fluid, transmission fluid, MEK, xylene, methyl alcohol, 20% nitric acid, 50% sodium hydroxide; it also passes the Hot Tire Test. Krystal Kote is also ideal for concrete countertops and bar tops or surfaces where a certified food grade sealer is required.

To maintain the surface gloss on an indoor project, a good mop-on acrylic wax is required for both residential and commercial applications. Residential wax can be mopped on with a sponge mop or wax applicator and does not need buffing. For high traffic locations, such as restaurants, bars or offices, a commercial wax finished with a floor buffer is recommended. Wax must be applied 2-3 times per year to maintain the floor's lustrous finish over time.

PRECAUTIONS

Safety

- When handling, wear protective gear, including impervious gloves and boots
- Eye protection is required. Chemical safety goggles are recommended. Wearing of contact lenses is not recommended
- Ensure that there is adequate ventilation in the work area. Prevent the release of vapor or mist into the air and have emergency equipment, safety shower and eye wash station readily available
- Wash face and hands thoroughly after handling and before eating, drinking or using tobacco products
- Place used contaminated material and packaging into suitable containers and dispose of as controlled waste. Review and follow all local, state and federal regulations
- When diluting, slowly add water to the acid to avoid boiling or splattering
- Keep containers closed when not in use

Performance

- Never use a muriatic acid or trisodium phosphate (TSP) wash to clean concrete prior to applying acid stain. Application of these chemicals will prevent the acid from reacting properly with the concrete. If the history of the concrete is unknown, always prepare a test area first
- Stepping on the wet surface will affect the chemical reaction and final color, and the surface can retain impressions of footwear and tools. If this occurs, brush out immediately. Spike-soled shoes can be worn on wet floors to minimize imprints
- Newly placed concrete must cure until the surface is a uniform light gray in appearance prior to application of stain

BUILDING CODES

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

Direct Colors Coffee Brown Acid Stain (Photo Courtesy of Decocrete)

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SmartBuilding Index

English Red Acid Stain and Coffee Brown Deco Gel Acid Stain (Photo Courtesy of S. Turfle)

6. Availability & Cost

AVAILABILITY

Products can be purchased from Direct Colors, Inc. at www.directcolors.com or by calling (877) 255-2656. Products are also available from certified distributors nationwide. Contact the manufacturer for local availability information.

COST

Consult the manufacturer for product-specific cost information.

7. Warranty

Direct Colors, Inc., warrants that products are of a consistent quality within manufacturing tolerances. For details, consult Direct Colors, Inc., directly.

8. Maintenance

Maintain the stained and sealed concrete surface by cleaning regularly. Wash spills immediately with a commercial cleaner.

9. Technical Services

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

10. Filing Systems

- SmartBuilding Index
- MANU-SPEC®
- Additional product information is available from the manufacturer upon request.

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