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Natural Colors for Concrete

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Colored leaf shapes were created for the sidewalks in an arboretum. Examples of the creative possibilities for the acid stains are seen here.

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Concrete has the natural appeal of stone by its mass and permanence. Concrete as stone is even more realistic when color variations are created on the concrete's surface.

One popular method of adding color variations is by applying chemically reactive stains. Also referred to as acid stains, these products are an excellent choice for producing colors often found in earth and rock.



Acid stain can be applied with a small hand sprayer or garden sprayer. Foam brushes and sponges are also useful for detail work. Generally, tools made from plastic, are acid resistant. Metal containing tools will be damaged by the product or may impart a strange coloration on the concrete because the metal is oxidized by the acid stain. When applying acid stains, the tools must be acid resistant.

Most manufacturers offer a limited range of colors. The colors produced are translucent, highly variegated, and mottled earth tones. New concrete should be at least 21 days old and dry before applying stains.

If the pores of the concrete are blocked, the coloring stain will not penetrate into the substrate, which will inhibit the coloring reaction. The surface must be free from curing compounds, sealers, wax, oil, and other contaminants. Interior floors that have received a hard trowel finish may also impede the stain. Evaluate penetration by wetting the surface with water. If the water is immediately absorbed and darkens the surface, no extensive preparation may be required. If the water beads up, and darkening of the surface does not occur, surface preparation is necessary. Even new concrete will require surface preparation.

A low foaming alkaline cleaner combined with a black scrubbing pad on a rotary floor machine can remove dirt, soil, grease, and oil. This method of cleaning is generally effective for water dissolvable contamination. Sealers and coatings may require mechanical grinding or chemical stripping. Hard-troweled interior floors will require mechanical abrasion with a 60 to 80 grit screen on a low speed floor machine. Use water to control dust. For more aggressive cleaning or on stamped or textured concrete, use brushes with polyethylene bristles and water. Mechanical and chemical preparation, even scrubbing with a black pad, may change the surface texture and color. Evaluate all cleaning procedures with test sections before proceeding. Do not use muriatic acid or acid-based cleaning products. Acidic cleaners will deplete the calcium hydroxide needed for the chemical staining reaction. Thoroughly rinse and wet vacuum cleaning residues. Retest for water penetration after surface preparation is completed.



Verify the final color of a stain application by producing and approving a mock up on the actual surface that will be stained.



The one gallon bottle of stain is mixed with one gallon of water. Mixing can occur in a plastic pail or similar container. No special mixing equipment is needed. The mixed material will cover 100-200 sq ft per gallon. Coverage varies depending on the concrete's mix design, porosity, texture and age, as well as the method of application and contractor's experience.

Do not apply stains to frozen concrete or if slab temperature will drop below freezing within 4-6 hours after application. Protect adjacent surfaces from over-spray with plastic. Divide surface into smaller working areas utilizing walls, control joints and other fixed objects as natural stopping points, ensuring a wet edge during application.

Application tools must be acid resistant. For most applications, use a manually pumped, plastic garden sprayer to apply chemical stain in a random motion. Maintain a wet edge at all times. Allow chemical stain to react on the surface for a minimum of 4 hours. Reaction time may vary with ambient and slab temperatures, wind, and humidity. For one-color and multi-colored applications, a small area should be scrubbed and rinsed to evaluate the color. Apply additional chemical stain as needed to achieve the desired colorations. Use shallow saw cuts to separate different colors or create a design.



This application used two stain colors for the borders and infield. The stains are simple to apply, but still quite dramatic and natural appearing.

The reaction of chemical stain with the concrete will produce a powdery residue. The residue must be neutralized and removed to prevent tracking or acting as a bond breaker when a sealer is applied. Neutralize chemical stain by scrubbing with a solution of 1 pound of baking soda with 5 gallons of clean water.

Some blemishes such as oil are difficult to remove completely and certain cleaning procedures that may chemically etch (acid based cleaners) or abrade (excessive scrubbing or grinding) may mar the decorative surface. Sealing a stained concrete surface, particularly an interior floor, is highly recommended to prevent dirt build up on. Typical concrete sealers are solvent- or water-based acrylics.

As concrete coloring materials and processes have evolved, concrete is no longer viewed as just a structural building material. It is also regarded as a creative medium suitable for many concrete installations, such as residential and commercial hardscapes, natural-looking and artistic floors, and even custom countertops. Consequently there is a demand for knowledgeable and creative installers.

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