LAMBCO® COLOR

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Supersedes all previous publications

INTEGRAL CONCRETE COLORING

LAMBCO® COLOR

MASTER FORMAT: 03 35 19
03 45 36 // 04 22 00

Product Description

Economy and versatility are the primary reasons why **LAMBCO® COLOR** pigments have enjoyed over 50 years of successful use in the concrete industry. Architects and designers depend on **LAMBCO® COLORS** to offer the exact colors wanted to achieve compatibility or exciting contrast between concrete units. Colored concrete is a lasting asset which will add value to any commercial development or private home.

LAMBCO® COLORS are pure mineral oxide pigments in a dry powder form that deposit within the cement matrix a high intensity color fast pigment. Their extremely small particle size gives the highest possible coloring strength. **LAMBCO® COLORS** are pure pigments that contain no fillers or admixtures. They are manufactured with high quality stable pigments that meet ASTM C-979 specification, are suitable for exterior and interior use, and durable to the effects of ultraviolet radiation.

LAMBCO® CLEAN COLORS BAGS are packaged in One-Bag - One-Yard sizes for your specific concrete mix design requirements.Specially computer weighed units that contain the exact amount of color for each truck batch size can be pre-packaged on special order in dispersible bags. This will eliminate the weighing or guess work at the batching location.

Applicable Standards

LAMBCO® COLORS meet or exceed ASTM C-979 standards.

Composition and Materials

Composed of inorganic pigments of metallic iron oxides, earth oxides, chrome oxides, cobalt oxides, and furnace black.

Advantages

- Pure mineral oxides with no additives.
- Uniform dispersion, resists flotation.
- Durable under exposure to sunlight.
- Will not react chemically with cement.
- Minimum soluble salt content.
- Low efflorescence.

Basic Uses – Concrete

LAMBCO® COLORS may be safely used for coloring of any type of portland cement concrete. Integrally colored concrete is often used in highly visible areas such as exterior and interior concrete slabs for public buildings, homes, or factories. Concrete areas such as floors, driveways, walkways, cart paths, curbing, pool decks, patios, patterned concrete, roof tiles, precast products, and cast-in-place concrete all are basic uses for colored concrete.

Colors Available

LAMBERT has 72 of the most requested colors represented on the "COLORS in CONCRETE" color card as they would appear when used with 94 pounds (42.3 kg) of grey or white cement. Different shades of the colors on this card can be made by adding more or less color with each 94 pounds (42.3 kg) of cement. Colors can be custom blended to meet most color samples with appropriate lead time.

Batching Color

The key to colored concrete success is batch to batch consistency and adherence to good concrete construction practices. The pigment amount to be added must be determined by weight. Never estimate by visual bag splitting.

Concrete Transit Mix Design

Cement for the entire color job should be the same type, brand, and from same mill. All aggregate should be supplied from same source. Mix design should remain constant. If the cement content varies, the pigment content must be adjusted to maintain the weight ratio of pigment to cement. Rinse the mixer drum thoroughly before batching Add color by weight directly in to the mixer along with the aggregate, cement, and water while the mixer is operating at charging or mixing speed. Add a precise amount of water, variations in amount of water will influence density of concrete and ultimate color intensity. Continue mixing for 5-10 minutes or from 50 to 100 revolutions, until the mass is free from spots or streaks of color.

Admixtures

LAMBERT CORPORATION does not pre-blend any admixture with the color. Pre-blending admixtures cannot meet all requirements for every situation and the pre-blend methods can add unnecessary costs to the finished product. Since there are no additional additives used in **LAMBCO® COLORS**, the concrete designer is free to take advantage of locally available proven materials which are generally lower in cost.

Packaging:

3-lb. BOX
5-lb. BOX
25-lb. BOX
50-lb. BOX

Placing Horizontal Concrete - Subgrade

A successful concrete slab starts with a well drained subgrade that can uniformly sustain the weight of the slab as well as the load imposed on the slab. The subgrade should be uniformly graded, compacted, and thoroughly dampened. There should not be any soft or muddy spots, or free standing water on the subgrade.

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Concrete Placing

Integral colored concrete does not require special procedures for placing and finishing, however greater care and good concreting practices must be followed.

All colored concrete should be placed at the same slump, using the lowest slump consistent with a workable and placeable mix. A 4 inch (10 cm) slump is recommended, 5 inch (12.7 cm) maximum but all concrete should be placed at the same water/cement ratio. This is very important to the end uniformity of job color. Once a portion of the batch has been placed, no water should be added to the remaining batch. Concrete should always be placed in the forms as near the final location as possible. Movement should be minimal, as it encourages segregation. Be sure to cover all nearby slabs and structures to avoid spatters from the new colored concrete.

Finishing

For color uniformity finishing should be done with extreme care. Place and consolidate the concrete avoiding excessive manipulation. Screed, tamp, and float to desired level. Finishing must not begin until bleed water has left the surface to avoid serious scaling, dusting, crazing, efflorescence, and uneven color. Avoid excessive floating. Do not add water to the concrete while placing or finishing, or over-trowel as this will cause discoloration. A broom or textured finish is recommended. Architectural vertical concrete and tilt-up panels should be textured and lightly sandblasted.

Limitations

Colored concrete is composed of a mass of coarse and fine aggregate, cemented together with a hardened cement paste in which is dispersed a permanent pigment. To determine exactly the final color obtained using certain cement, sand and aggregates, a test panel should be prepared using the proportions that will be used in the final product. These panels should be cured at least 7 days or more. When the choice of ingredients and their proportions is made, all subsequent mixes should follow the same formula. The color should be accurately weighed. Thorough mixing is necessary to realize full color value of pigment and to maintain uniformity from batch to batch.

UNEVEN CURING
UNEVEN DRYING
WILL RESULT IN UNEVEN COLOR

Cement paste hardens by a chemical reaction between the cement and water. The process is rapid during the first 7 days, then becomes slower but continues for a period of 28 days or longer. In all instances an excess of water must be present, otherwise the concrete will crack, dust, and not attain full design strength. Proper curing conditions are necessary to obtain uniform color. LAMBERT'S COLORGARD or CLEAR COLORSEAL is recommended for curing and sealing. Avoid using plastic sheeting, membrane paper, or intermittent type wetting and drying methods of curing. The maximum dosage rate of color should be less than 10% of the total weight of cement in the mix design. Colors should be stored in a dry place to prevent lumping. ***Fly ash (because of its color variations) is not to be used in colored concrete.*** Light or pastel colors are very hard to achieve in naturally gray concrete unless white cement is substituted for the gray cement in the mix. Avoid the use of calcium chloride accelerator as it will affect the uniformity of color. The LAMBERT color DEEP BLACK is a carbon black, it should not be used in air-entrained concrete. LAMBCO® COLORS are designed for mix-in use only. They should not be sprinkled or dusted on to a fresh concrete surface. LAMBERT'S COLORBRITE® or COLORHARD® should be used for dust-on applications.

Efflorescence

Sometimes called blooming or scumming, it is a white crystalline deposit on the surface of concrete. It is more easily observed on dark colored surfaces than on concrete of natural color, and for this reason the effect is sometimes attributed to the colored pigment. Actually this is not the case, as properly selected pigments contain no foreign materials in such quantities as to cause efflorescence. Usually the white crystal consists of Calcium Carbonate resulting from the action of Carbon Dioxide in the air or water with the free lime salts in the hardened cement paste which form white crystals (carbonates). The Calcium Carbonate may be removed by first wetting the surface with water, then washing with a solution of 1 part phosphoric acid to 10 parts of water followed by a water wash with a stiff bristle non-metal brush or broom, then flushed with clean water.

Important Points

- Do not schedule colored concrete if rain is expected the day of or day following pour.
- Moist, uniformly compacted sub-grade is important. Wetter areas and thicker portions of concrete will set slower than drier areas and thin portions of concrete.
- Color should be added at the batch plant to ensure good mixing.
- Be sure of uniform consistency from batch to batch, 4" slump is recommended.
- Place uniformly and in same order as finishing operations will be done.
- After screeding, bullfloat before water comes to surface.
- Proper timing for final finishing is important. Second floating should not begin until surface water and sheen has disappeared and surface has taken initial set. Stiff yet workable.
- Textured surfaces-broom, rubber, or wood float, should be done immediately after second floating. Do it right the first time, if you come back later it will show.
- Care should be taken with smooth hard trowelled surfaces to avoid trowel burns.
- After final finish apply COLORGARD or CLEAR COLORSEAL.

First Aid

Cement powder or freshly mixed concrete or mortar may cause skin injury. Avoid contact with skin and wash exposed skin areas promptly with water. If any cement powder gets into eyes, rinse immediately and get prompt medical attention.

KEEP OUT OF REACH OF CHILDREN