

## MORA MIX COLORS DRY INTGLUAR COLOR

### TECHNICAL SPECIFICATIONS Ron oxide pigments

#### IRON OXIDE PIGMENTS:

The use of iron oxide colors in concrete has grown to be the single largest application for this type of pigment. This increase in usage has created a demand for better technology and quality control throughout the concrete industry .

#### MIXING:

- ✚ The drum must be cleaned. Do not use reclaimed slurry water or reclaimed aggregates.
- ✚ Add approximately two-thirds of the mix water and one-half of the aggregates to the drum, then add color pigment at full charging speed. Add the balance of the ingredients (water, aggregates, cement and admixtures) and mix at full charging speed for a minimum of 5 minutes (60 revolutions) when using Mora Colors ColorFlo liquid color, or 10 minutes when using dry pigment powder or granules (100 revolutions), before pouring concrete (6.13-7.36 m<sup>2</sup>/L).
- ✚ When using small or smooth rounded aggregates, or sand-blasted or exposed aggregate finishes, do not add the bag to the truck. Add only the color pigment by opening the bag and pouring all color into the truck.
- ✚ Mixer should be loaded to a minimum of 40% capacity to ensure good color dispersion
- ✚ Be sure to use the same mix design and maintain a consistent water-to-cement ratio throughout the job. The use of plasticizers, water reducers and air entraining products designed for colored concrete production are acceptable. Mora Colors strongly recommends the use of test slabs to determine final color outcome.
- ✚ After pour has begun, adding water to the load to improve workability often causes color variation.
- ✚ When using Mora Colors pigments packaged in regulable bags, slit the bag along the top dotted line, and completely remove and discard the top portion of the bag. Also slit the bag along the other dotted lines before dumping entire bag into the mixer. Following these guidelines will destroy the paper bag and provide the best dispersion of the pigment.

#### ADDITIVES:

- ✚ DO NOT use calcium chloride. This product can cause discoloration in the form of light and dark areas in the finished product. Non-chloride accelerators, including hot water, are acceptable accelerators.
- ✚ Check the compatibility of the mix design (plasticizers, water reducers and air entraining products) with the addition of color by pouring a test slab to confirm the preferred results.

#### JOB PREPARATION:

Good drainage and compacted aggregate add many benefits to decorative concrete. Pouring concrete over an inconsistent sub-grade or mix of dirt, plastic, wood, asphalt and existing concrete will not cure evenly. These types of sub-grades will force the majority of water to the surface to evaporate, causing efflorescence in those affected areas. In hot conditions, dampen the sub-grade before each pour to keep moisture in the concrete to allow better hydration. Keep the sub-grade moisture consistent throughout the day without allowing water to pool.

Jobs requiring a vapor retarder, and job sites having high heat and low humidity conditions, are exceptions to pouring over plastic. Pouring concrete directly over plastic can lead to numerous problems including excessive bleed water, uneven drying time, shrinkage, cracking, and efflorescence. Consider adding 2"-4" of sand between plastic and concrete. If pouring directly over plastic, mix design may need to be altered. Slump and placement techniques require tighter tolerances, and finishers need to be well trained and experienced.

#### **FOR VERTICAL APPLICATIONS (CAST-IN-PLACE OR TILT-UP WALL):**

All forms should be cleaned thoroughly prior to use or reuse, and applied release agents should be non-staining. For best results, forms should be free of cement residue from any prior concrete pour of a different color. Vertical wood forms should be made of medium-density overlay plywood. For color uniformity, methods and material used in preparing the forms should be consistent through the completion of the job. Lightly and uniformly sandblasting vertical surfaces is highly recommended to remove minor form marks and any colored residue resulting from water, cement and coloring agents bleeding toward the forms during concrete placement.

#### **CURING:**

- ✚ DO NOT fog or spray water on the surface during the initial curing period.
- ✚ DO NOT cover the surface with plastic.
- ✚ Failure to follow these guidelines can lead to uneven curing and coloration.

#### **TECHNICAL SPECIFICATION DATA:**

Composition and materials: Pigments are pure red, yellow, and black synthetic iron oxides. Mora Colors has expanded the color range by formulating laboratory-controlled, high tinting strength pigment blends. Each of these colors is 95% to 99% minus 325 mesh particle size. Mora Colors iron oxides are permanent, inert, stable to atmospheric condition, sunfast, lime proof, and free of deleterious fillers and extenders. All Mora Colors pigments comply with ASTM C979 for integrally colored concrete and are produced and tested to an established plant standard.

#### **SOLAR REFLECTANCE INDEX (SRI):**

SRI is the measure of a surface's ability to stay cool in the sun by reflecting solar radiation and emitting thermal radiation. The SRI value is calculated according to ASTM E 1980.

#### **LIMITATIONS:**

A level of 7% (by dry weight) color based on the weight of total cementitious material used is the color saturation point. Color added in excess of 10% (by dry weight) can reduce the overall strength of the finished product. Conversely, a level of color below 1% can cause irregular coloring and general "washed out" appearance. The suggested "optimum" range is 2% to 4% pigment loading based on total cementitious material weight. When using our 908 CARBON BLACK, a level of 2% color based on the weight of total cementitious material used is the color saturation point. Color added in excess of 2% will not provide additional

benefits. The suggested “optimum” range is 1% to 2% pigment loading based on total cementitious material weight (cement, lime, fly ash, GBFS and other pozzolanic materials). Due to the particle size of carbon, it has a tendency to dissipate out of concrete over time. Mora Colors recommends sealing the concrete with a Brick form concrete sealer. It is important to maintain a proper sealer maintenance program to protect the surface color, as this will help slow this process down and, in some cases, prevent it. Carbon particles will decrease the amount of entrained air during the mixing process. Monitoring air content to specification will be necessary.

#### **LIMIT OF WARRANTY AND LIABILITY:**

Mora Colors, Inc. warrants that their products conform to the description and standards as stated on the product packaging and specific product literature. If properly mixed and applied, Mora Colors, Inc warrants the color to be uniform, lime proof, and sunfast. The exclusive remedy of the user or buyer and the limit of the liability of this company shall be the purchase price paid by the user or buyer for the quantity of the Mora Colors, Inc. products involved.





