Field marking paints:

Characteristics and composition

BY MARK A. WHITLAM

Field marking has come a long way from the days of lime, chalks, and oil-based paints used to mark the lines on sports fields. Today, painting with latex-based field paints has become the choice method for lining and decorating fields. Using latex paints has a distinct advantage over its predecessors being safe for the environment, non-damaging to the turf, having relatively low cost per application, and being easy to clean up.

Today's field marking paints are derived from a mixture of a vehicle, the liquid portion of the paint, and pigments, the solid portion of the paint. Within each of these segments, the paint derives its own characteristics. In field marking paints the vehicle contains three primary ingredients: the solvent (water), the binder (latex resin), and wetting or dispersing agents (the same liquids used in dish soap).

The pigments include titanium dioxide (the whitest pigment available) used as a primary pigment and filler pigments such as calcium carbonates, silicates, talc, and Kaolin (clay). All of these materials are combined and ground to form a coating desirable for decoration or identification of boundaries.

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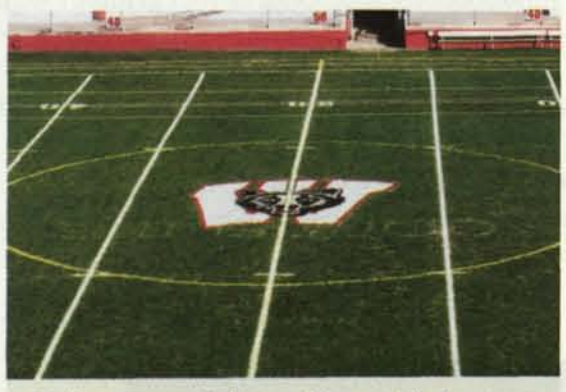
Latex is king

Latex has become the binder most used in field marking paints due to its unique structure and ability to be reduced with water. Once latex has dried, it forms a complex polymer structure of lattices (hence latex) much like latticework in construction. However, these lattices build layer upon layer in all directions to produce a paint film. This allows the substrate, in this case the grass, the ability to "breathe." This structure also allows for evaporation of very small water molecules leaving the blade of grass, fueling the grass for continued growth.

Pigments give the paint its color and are generally organic for field marking paints. Nontoxic organic pigments have been used since man first began drawing on cave walls; organic pigment colors, however, have changed significantly in the past 100 years.

Only recently have organic pigments become popular; earlier problems included their relatively high cost compared with leaded pigments. Today, organic pigments can now be synthetically manufactured, offering you stronger tint strengths, better light fastness (ability to keep its color), and in a few cases, new pigment types or color shades allowing for a larger range of colors. With these recent advancements, organics have offered increased value.



No longer can field-marking paints be considered a paint companies' scrap or reworked material.

Surfactants or "wetting agents" and dispersants are the smallest part of field marking paints. Typically only 1-2 percent of the total paint consists of these agents. Surfactants and dispersing agents get their name from how they perform. Surfactants are "surface active agents." Most dry pigments are "hydrophobic" in nature, meaning they fear water. Therefore, these surfactants allow the latex and water to combine with the pigments and stay "wet" in solution. Depending on its nature, surfactants will also aid in the wetting of the substrate or grass. The dispersing agents keep all the ingredients mentioned above in solution and prevent settling out.

Painting on multi-purpose fields

Permanent paint on the turf presents a problem to turf managers when their field is used for several different sporting events. The only available way to remove the paint is to wait for the lines and logos to wear out or use the old standby, chalk.

Several years ago our company, Whitlam Paint, with the assistance of David Frey, former field director of Cleveland Stadium, developed a temporary field marking paint named Temp-Stripe for multi-purpose natural turf fields. The idea was to produce a paint that could be applied like normal field marking paints, but could easily be removed from the field with the use of minimal water pressure.

One concern and probably the most critical, was how the temporary paint would hold up to foul weather, so what a better place to test it than at Cleveland Stadium, being known for its harsh and extreme weather. The paint proved effective and held through 3 days of rain before the event. When it came time to remove the paint from the field, water pressure was applied with a spray hose hooked to the sprinkler system and a light brush with a broom removed the paint effectively. It is possible to change a field over from football to baseball or football to soccer without having unsightly lines and logos cluttering up the field.

No longer can field-marking paints be considered a paint companies' scrap or reworked material. The manufacture and use of field marking paints has changed and advanced considerably in the past several years. Field marking paints have become more technologically advanced to provide for easier application, brighter, cleaner colors, and greater compatibility with the environment. ST

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