

Marcus Wax Applications for Thermoplastic Road Markings

Thermoplastic Road Markings (TRM)

Thermoplastic Road Markings (TRM's) are widely used due to advantages over solvent and/or water based systems including:

- Little or no volatiles
- Long service life & durability -often lasting for 2-6 yrs
- Rapid drying following application

There are two basic types of TRM formulations, alkyd and hydrocarbon based. Alkyd systems typically utilize a maleic modified glycerol ester resins while hydrocarbon based systems typically use a C4 and/or C5 resin.

The required properties of TRM formulations depends on application equipment, road and environmental conditions as well as road use patterns,

In general TRM's must have good abrasion, impact and indentation resistance (particularly important in extreme temperature regions) They must also have quick drying time, resistance to cracking, aging and good surface properties in terms

Marcus wax to ease application and improve durability of Thermoplastic Road Markings

Marcus wax can be used in many TRM formulations to improve properties including:

- Modification / reduction of viscosity to facilitate application, especially in spray applied systems
- Increase formulation softening point
- Reduce settling of glass beads suspended in formulation
- Improve durability of TRM's

Marcus wax can overcome drawbacks associated with other techniques of reducing formulation viscosity that might include addition of oils (mineral, castor) , which can bleed from the formula and cause other problems.

TRM's are applied hot, usually 150-200C and can either be spray applied or extruded. Spray applications benefit from low and consistent viscosity needed for proper application.

Glass beads are usually incorporated into road marking formulations to increase reflectivity of light. The wax/resin system should allow for good glass bead adhesion as well as aid in suspending the bead (anti settling) in the molten formulation during application.

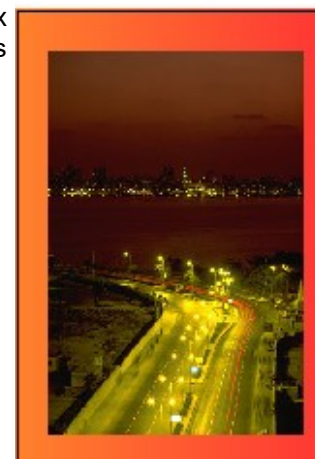
There are many variations of TRM's depending on vendor and application. Marcus waxes are compatible with many of these systems. A general Hydrocarbon TRM formulation would include:

	Percent
Aliphatic (C4,C5) Hydrocarbon	18-27
Marcus Wax (M300 or M500)	2-8
Inorganic filler (Calcium Carbonate, silica, Glass Beads)	20-75
Pigment	2-15

Some formulations will incorporate additional components such as plasticizers antioxidants, and EVA resins .

Formulations that include rosin base resins combined with EVA resin also can use Marcus wax to improve application properties and durability.

In general formulations must be stable for extend periods at elevated temperatures and have the ability to be reheated without degradation of properties in the US and many other countries, markings for roads and airports must usually meet specific performance and application requirements based on local, State and Federal regulations. Specific requirements should always be consulted beforehand



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