

## TRAFFIC PAINTS

Traffic paints are specialized coatings formulated to withstand vehicle loading, environmental exposure, and rapid return-to-service demands. While often grouped under a single category, traffic paints vary significantly depending on intended use. Products designed for highway striping differ from those used in parking lots, warehouse zones, or airport runways. Understanding these distinctions is essential for selecting the appropriate system and meeting performance, safety, and regulatory requirements.



### Traffic-Marking vs. Zone-Marking

The term traffic marking paint generally refers to coatings used on public roadways, highways, and other surfaces exposed to ongoing vehicular traffic. These markings play an important role in driver guidance and roadway safety and are typically required to comply with state Department of Transportation (DOT) specifications. Because of their critical function, performance demands are high, including stringent requirements for drying time, abrasion resistance, durability, and retroreflectivity, which is the ability of the marking to return light from vehicle headlights back toward the driver for improved visibility at night and in other low light conditions.

Zone-marking paints, by contrast, are typically used in parking lots, curbs, crosswalks, warehouses, and other commercial or industrial environments. While durability remains important, these areas generally experience lower speeds and less severe wear than highways. Regulatory oversight is usually less stringent than DOT-controlled roadway applications, although property owners and municipalities may impose their own specifications.

The distinction is important because traffic-marking paints often contain higher-performance resins, optimized pigment systems, and additives designed specifically for high-speed vehicular traffic and environmental exposure.

### Types of Traffic Paints

Traffic paints are available in several chemistries, each designed for specific performance demands:

**Waterborne acrylic traffic paints:** Commonly used for highways and municipal roadways. Fast-drying, environmentally compliant, and compatible with glass bead application for retroreflectivity.

**Solventborne traffic paints:** Used in certain regions where lower temperatures or rapid cure under adverse conditions is required.

**Thermoplastic markings:** Applied in molten form and provide thick, highly durable markings for heavy-traffic roadways.

**Epoxy or MMA (methyl methacrylate) systems:** Used in high-abrasion or specialty applications where extended service life is required.

Parking lot striping most commonly uses waterborne acrylic traffic paints formulated for commercial use. However, not all parking lot paints meet DOT highway standards.

## Drying Time and Return to Service

One of the defining characteristics of traffic paints is rapid drying time. On active roadways, minimizing lane closure time is critical for safety and traffic flow. Many highway-grade waterborne traffic paints are formulated for “no-track” or “track-free” times within minutes under standard conditions. This allows traffic to resume quickly without paint transfer onto vehicle tires.

Drying time depends on temperature, humidity, air movement, and film thickness. Over-application can significantly extend dry time and increase the risk of tracking or pick-up. Striping contractors must calibrate equipment to apply proper mil thickness and avoid excessive build.

In parking lot applications, drying time remains important but is generally less critical than on highways. Facilities can often be sectioned off to allow adequate curing before reopening.

## Hot Tire Pick-Up Resistance

Abrasion resistance is particularly important on highways, intersections, and turning lanes where tire friction is high. Heavy truck traffic, snowplow blades, and environmental wear contribute to marking degradation.

DOT-grade traffic paints are typically tested for wear resistance and durability under simulated traffic conditions. Parking lot paints may not undergo the same level of abrasion testing, as traffic volume and vehicle speeds are lower.

For high-wear environments—such as distribution centers, bus lanes, or loading docks—epoxy or MMA systems may be specified to provide extended service life beyond standard acrylic traffic paints.

## DOT Requirements and Specifications

Highway traffic markings are typically governed by state DOT specifications, which may include requirements for retroreflectivity levels, drying time (no-track time), abrasion resistance, adhesion to asphalt and concrete, volatile organic compound (VOC) limits, and compatibility with glass beads.

Many DOT-approved paints must be listed on Qualified Products Lists (QPLs). Contractors must verify that the specific product is approved for use in that state. Failure to use an approved product can result in rejection, removal, or non-payment.

DOT specifications often reference federal guidelines, including those associated with the Manual on Uniform Traffic Control Devices (MUTCD). While the MUTCD governs color and layout standards, material performance is typically controlled at the state level.

## Airport Runway and Airfield Markings

Airport runway and taxiway striping represent a specialized subset of traffic markings. These applications are subject to Federal Aviation Administration (FAA) specifications, which are often more stringent than roadway requirements.

Airfield markings must withstand jet blast, fuel spills, hydraulic fluids, deicing chemicals, and heavy aircraft loading. As a result, airport-grade markings commonly use epoxy or other high-performance systems rather than standard waterborne acrylic traffic paints.

Drying time remains critical, as runways must return to service quickly. However, chemical resistance, abrasion resistance, and long-term adhesion under extreme conditions are equally important.

Reflectivity requirements also differ from roadway standards due to runway lighting systems and operational considerations.

Contractors performing airport striping must follow strict application guidelines, including surface preparation standards and bead application rates.

## Selecting the Appropriate System

Choosing between traffic-marking and zone-marking paints requires evaluating traffic volume and speed, substrate type (asphalt vs. concrete), environmental exposure, temperature conditions, required return-to-service time, and regulatory or agency requirements.

Highway and municipal roadway applications demand DOT-approved materials engineered for rapid drying, abrasion resistance, and long-term visibility. Parking lots and warehouse zones may allow greater flexibility but still require attention to hot tire resistance and durability.

Airport and airfield applications require FAA-compliant systems capable of withstanding extreme mechanical and chemical stress.

## Key Takeaways

Traffic paints are not a one-size-fits-all product category. Differences in formulation, performance requirements, and regulatory oversight distinguish highway striping from parking lot and zone-marking applications. Key performance attributes—including drying time, return-to-service capability, hot tire pick-up resistance, and abrasion resistance—must align with the intended service environment. DOT and FAA specifications add another layer of compliance that contractors and specifiers must understand before selecting materials. By matching the coating system to the specific application and regulatory framework, project stakeholders can ensure safety, durability, and long-term marking performance.

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