

COMPARISON OF EQUIPMENT PAINT SPECIFICATIONS (Outline)

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INTRODUCTION

For years, government entities and companies in the private sector have made a concerted effort to determine what paint specifications should say and require. Visibility and the environment are two areas that must be considered when specifying fleet paint colors.

- **Safety/Visibility** - Safety and visibility go hand in hand. Imagine yourself as a highway patrolman arriving at the scene of a rear-end collision between a truck and another motor vehicle. The driver of the motor vehicle approaches and confesses: "I honestly didn't see that truck, officer," or "I didn't see that truck in time to stop!" Why didn't the driver see the truck? A number of factors may have been operating to impair visibility, but let us consider one important factor--the vehicle's coloring.
- **Environment/Federal Guidelines (EPA,OSHA)** - The environment is a hot topic right now. Government is being asked to account for its policies that affect what the public views as its natural heritage. Our image and our responsibility to make environmentally sensitive decisions are intertwined as are safety and visibility when considering paint colors.
 - By 1981, there was considerable concern in the paint and manufacturing industry about the use of paints containing lead. The Consumer Product Safety Commission (CPSC) declared paints containing more than 0.06% lead were hazardous and banned their use in the manufacture of toys and furniture.
 - Subsequently, the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) promulgated strict rules for application of leaded paints on manufactured goods. What are the hazards related to the use of leaded paints?
 - Application - drift, inhalation (human factor, environment)
 - Paint Containers - disposal, cleanup (human factor, environment)
 - Body Work - cleanup, inhalation (human factor, environment)

- Trickle-down - eventually gets into food chain. Recent studies prove an alarming percentage of school children have elevated levels of lead in their bloodstreams.

- The results: Beginning in 1981, manufacturers began to voice their concern about meeting specific color requirements in view of the newer, stricter rules. Some manufacturers did away with usage of leaded paint altogether, rather than modify existing facilities.
- Facing imminent increased regulations from the Michigan OSHA (MIOSHA), clear-coat painting systems were introduced by automotive manufacturers beginning with Chrysler in 1986, followed by Ford and General Motors in 1987. Light and medium duty trucks would also eventually follow.

VARIOUS STATES' FLEET PAINT COLOR REQUIREMENTS

- Alabama: Omaha Orange (Color 107, Army & Navy Specification, TTE 489, Class A)
- Arkansas: Omaha Orange (Sherwin Williams F10E 4141 Acrylic Enamel)
- Florida: DOT Yellow (DuPont Centari L9069A)
- Georgia: Highway Yellow (DuPont 174AH)
- Kentucky: White (DuPont LF-508, Lead Free Acrylic Enamel)
- Mississippi: Omaha Orange (Ford 5684, Chev. 88 or 982, paint number provided after bid award)
- North Carolina: Yellow (Moline, MPM 11-Y169A, Lead Free)
- South Carolina: Standard Yellow (DuPont 93-75306, Dump Body, Black)
- Tennessee: Orange (Chev. 88, Ford WT5684, International 0311, and GMC 88). Other brands, color specified after bid award. Body to match cab, DuPont 31AH Acrylic Enamel or Sherwin Williams F10E4143 Acrylic Enamel
- Virginia: Orange (DuPont LF74279AT, Lead Free)

- West Virginia: White (Federal Standard White 595A, No. 17875. Body, Martin Senour Dark Blue, No. 82-5802)

NEW JERSEY DEPARTMENT OF TRANSPORTATION (NJDOT) STUDY

- NJDOT has been requiring Lime Yellow (DuPont Centari, 7744A) since 1977 as the fleet color following the recommendation in a study by Dr. Stephen Solomon published in the early 1970s.
- Dr. Solomon presented scientific evidence that supported his theory that questioned the use of "fire engine red," which was then used on all fire fighting equipment. He recommended the usage of greenish-yellows that are more reflective in all lighting, weather, and perceptual conditions.
- NJDOT felt the color would be unique, and more readily recognizable.
- Human eye is most sensitive to color with 510 m μ (millimicron) wavelength (scotopic peak) in night lighting and that with 555 m μ wavelength in day lighting.
- Greenish-yellows fall somewhere in the mid of color spectrum where these scotopic (night) and photopic (day) curves cross over.
- Reflects 66.7% of light vs. 57% reflected by standard yellow color.

TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) STUDY

- With the advent of the tightened rules for application of leaded paint, by EPA and OSHA, and new use of clear coat paint systems by manufacturers in 1986, organic pigments used in the new paints no longer matched Federal Yellow, TxDOT's standard fleet color, beginning in 1986.
 - By 1987, orders for non-standard paints delayed delivery of both automotive products and heavy equipment by up to 8 additional weeks.
 - Based on annual purchases of automotive equipment, research in 1987 revealed a possible savings of \$40,000 per year, if standard colors are ordered.

- Studies by TxDOT Occupational Safety Division revealed that white has a higher light reflection percentage than yellow or orange.
- TxDOT determined that acceptance of standard colors would shorten delivery time.
- Based on researched data, coupled with TxDOT's commitment for responsible purchasing practices and emerging concerns for the environment, the decision was made to change TxDOT's fleet color to the manufacturer's standard white, in certain instances.

- Specific applications
 - Manufacturer's Standard White - All on-highway equipment, including vans, carryalls, station wagons, light, medium and heavy duty trucks, and trailers used to haul equipment.
 - Federal Yellow (No. 13538 of Federal Standard No. 595a) -All off-road equipment, such as construction equipment and trailer-mounted equipment towed behind vehicles (air compressors, arrow boards, etc.).
 - Manufacturer's Standard Pre-approved Light Colors - Sedans. Beginning in 1993, sedans also will be white.
- Candlepower of white compared to other colors
 - White is the brightest and most reflective color, with a light reflection percentage of 84.0, followed by Yellow at 57%.
 - The Lime Yellow used by the New Jersey Department of Transportation, has a light reflection percentage of 66.7.
- Advantages and Disadvantages determined by the TxDOT Study
 - In summary, the advantages of the use of standard paint colors are:
 - Cost (\$40-\$50 per unit on sedans, light duty pickups, etc).
 - Delivery (Earlier delivery ranging from 30 days to 8 weeks).
 - Disadvantages associated with use of non-standard or white paint:
 - Economically infeasible on heavy equipment (Manufacturers advised that non-standard paint, whether white or orange, adds approximately \$500-\$700 in cost to each unit ordered.)
 - Usage of white would mean having a two-color fleet for several years.

- Use of non-standard colors means less money at resale. This is based on data gathered by DuPont and Automotive Fleet Magazine, July 1991. Henry Ford's old axiom that you could buy it in any color you liked as long as it was black no longer holds true.
- Non-visibility of white in snow areas.

CURRENT TRENDS/ACTION

- Paint specifications and their standardization were recently discussed at the Southeastern States Meeting. Each attendee brought a paint chip representing their current specification. The results were most enlightening. Each time a paint chip was chosen by an attendee, it was similar to that person's state requirement, but the chip chosen was the wrong shade in most instances.
- Vendor information suggested a considerable savings if the states were more uniform in their color choices.
- States should consider accepting the manufacturer's standard shade of the desired colors.

BOTTOM LINE

- This issue is difficult to address, as there are strong feelings based on long-standing traditions. There is definite merit, in regard to economic benefits, safety, and environmental considerations, to reconsider current policies and practices regarding paint specification requirements for equipment. Texas undertook what some describe as a progressive move in 1988, and what others described as a more radical move, in requiring manufacturers standard colors for fleet vehicles. However, the benefits as described earlier have proven to outweigh the disadvantages. Alabama is currently considering an even more progressive move to extend this practice to their off-road equipment.
- We feel it is time for other states to consider these benefits as well. We encourage the state DOT's to begin discussing these issues and work through their regional meetings to determine the suitability of adopting manufacturers' standard colors, or the adoption of a nationally recognized standard color.