



Florida Department of Transportation

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MEMORANDUM

DATE: December 10, 2009

TO: Specification Review Distribution List

FROM: Rudy Powell, Jr., P.E., State Specifications Engineer

SUBJECT: Proposed Specification: 9710400 Traffic Marking Materials

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

This change was proposed by Chester Henson of the State Roadway Design Office to add durable waterborne paint.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at ST986RP or rudy.powell@dot.state.fl.us. Comments received after **January 7, 2010**, may not be considered. Your input is encouraged.

RP/dt
Attachment

TRAFFIC MARKING MATERIALS.
(REV 11-20-09)

SECTION 971-4 (of the Supplemental Specifications) is deleted and the following substituted:

971-4 *Durable Waterborne* ~~Fast Dry Solvent~~ Traffic Paint.

971-4.1 General: *Durable waterborne* ~~Fast dry~~ traffic paints intended for use under this Specification shall include products that are single packaged and ready mixed. Upon curing, these materials shall produce an adherent, reflective pavement marking capable of resisting deformation by traffic. The manufacturer shall have the option of formulating the material according to his own specifications. However, the requirements delineated in this Specification and Section 710 shall apply regardless of the type of formulation used. The material shall be free from all skins, dirt and foreign objects.

971-4.2 Composition:

Component	Test Method	Criteria
Total Solids, by weight	ASTM D 2369	75% minimum
Pigments, by weight	ASTM D 3723	57% minimum
Vehicle Solids, % of Vehicle*		40% minimum
TiO ₂ , Type II Rutile (white paint only)	ASTM D 476	1.5 lb/gal minimum
Volatile Organic Content, (VOC)	ASTM D 3960	150 g/L maximum
<p><i>*Vehicle Solids % of Vehicle = $\frac{\% \text{ total solids} - \% \text{ pigment}}{100 - \% \text{ pigment}}$</i></p> <p><i>Vehicle solids shall be 100% acrylic emulsion polymer.</i></p>		

971-4.3 Physical Requirements: The material shall meet the following criteria:

Property	Test Method	Minimum	Maximum
Density	ASTM D 1475	13.5 ± 1.40 .37 lb/gal	N/A
Consistency <i>Viscosity</i> at 170°F	ASTM D 562	80 KU	100 KU
Fineness of Grind	ASTM D 1210	2 (HS)	3(HS)
Dry Opacity at 5 mils WFT	Fed Std 141a Method 4121 <i>ASTM D 2805</i>	0.96	-
Bleed Ratio	Fed Spec TT P-85D <i>ASTM D 969</i>	0.95	-
Flexibility	Fed Spec TT P-115D <i>ASTM D 522 Method B</i>	Pass	-
Abrasion Resistance	971-4.3.2	Pass	-

971-4.3.1 Set To Bear Traffic Time: The material shall set to bear traffic in not more than ~~ten~~ *two* minutes.

971-4.3.2 Abrasion Resistance: Test four samples per LOT using a Taber Abrader. The paint shall be applied to specimen plates using a drawdown blade having a clearance of 26 mils. Air dry each sample for 30 minutes and bake at 220°F for 18 hours. Clean with a soft brush and weigh each sample. Abrade samples for 1,000 cycles with ~~1.1 lb~~ **500 g** weights and CS-10 wheels. Clean the samples with a soft brush and weigh again. The average weight loss for the four plates shall not exceed ~~0.178 oz~~ **50 mg** per plate.

971-4.3.3 Retroreflectivity: The white and yellow pavement markings shall attain an initial retroreflectance of not less than 300 mcd/lx·m² and 250 mcd/lx·m², respectively. The retroreflectance of the white and yellow pavement markings at the end of the ~~six~~ **18** month service life shall not be less than 150 mcd/lx·m².

971-4.4 Application Properties: Application properties shall meet the requirements of Section 710.

971-4.5 Packaging and Labeling: The traffic paint shall be placed in 55 gallon open-end steel drums with a re-usable multi-seal sponge gasket. No more than 50 gallons of material shall be placed in any drum to allow for expansion during transport and storage.