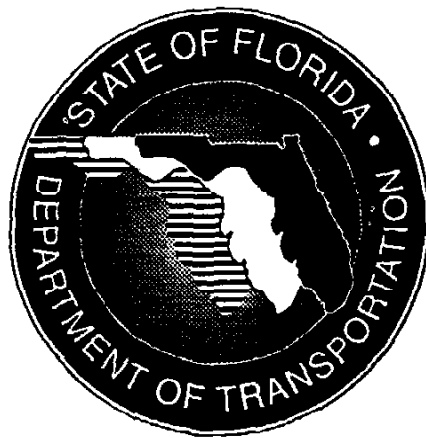


**FLORIDA
DEPARTMENT
OF
TRANSPORTATION**



**Standard Specifications
for
Road and Bridge
Construction**

1991

Tallahassee

971-12 Traffic Paint, Codes T-1, T-2 and T-3.

971-12.1 General: Before manufacturing traffic paint, the manufacturer shall submit to the Materials Office, at Gainesville, samples of all raw materials to be used. These samples shall be properly identified and shall be furnished in quantities sufficient for testing. The manufacturer may also be required to submit a five-gallon sample of the paint made in accordance with these specifications, if requested to do so by the State Materials Engineer.

After all raw materials have been tested and approved the manufacturer will be notified and a date agreed upon to begin production of the paint, at which time a representative of the Materials Office will be sent to the plant where he will make the required tests and inspection of all paints on the contract order.

The containers for this paint shall be open-end drums of 50- to 55-gallon capacity, meeting current specification requirements of the United States Department of Transportation for transporting flammable liquids. No second-hand containers shall be used under any circumstances.

For the Department's purchase orders for traffic paint, Codes T-1, T-2 and T-3, the drums shall be sealed with a reusable multi-seal sponge gasket, of a type which will prevent the paint from skimming or livering during storage.

971-12.2 Code T-1: Traffic Paint. Code T-1 (white). shall conform to the following specifications:

971-12.2.1 Paint Composition:

Pigment, minimum	54.9% by weight
Vehicle, maximum	45.1% by weight
Volatile Matter (% of vehicle), maximum	63.0% by weight
Weight per gallon, minimum	12.0 pounds
Grind, NS	2-3
Consistency	70-74 KU

Drying Time: The paint shall dry sufficiently within 45 minutes so that there will be no pick-up when tested according to ASTM D 711, using an unbeaded test stripe.

971-12.2.2 Pigment Composition:

Titanium Calcium Pigment, minimum	55.7% by weight
Zinc Oxide, minimum	8.3% by weight
Calcium Carbonate Pigment, maximum	11.0% by weight
Magnesium Silicate, maximum	25.0% by weight
Coarse Particles Retained on No. 325 (44 Micron) Sieve, maximum	2.0% by weight

NOTE: The titanium calcium pigment shall, in addition to conforming to ASTM D 476, possess the following physical characteristics:

Crystal Structure of Titanium Dioxide	Rutile
Refractive Index (mean)	1.98
Average Particle Size, mean diameter, micron	0.5-0.8
Specific Gravity	3.25
Tinting Strength (Reynolds Constant Volume Method)	600
Oil Absorption, lb. oil/100 lb. pigment (Spatula Method)	23
Relative Resistance to Chalking	20

The manufacturer, at his option, may substitute the following pigment mixture for the Titanium Calcium pigment:

Titanium dioxide, rutile, ASTM D 476, Types II or III, minimum	30%
Calcium Carbonate, maximum	50%
Magnesium Silicate, maximum	30%

971-12.2.3 Vehicle Composition:

Vegetable Oil, Modified Alkyd Resin Solution, minimum . . .	62.5% by weight
Thinner, Naphtha, low-boiling, maximum	35.8% by weight
Anti-skinning Agent, minimum	0.2% by weight
24% Lead Naphthenate	1.25% by weight
6% Cobalt Naphthenate	0.25% by weight

Anti-skinning agent to be a substituted phenol or oxime type.

The Alkyd Resin solution shall have the following properties:

Solid Content, by weight	59-61%
Solvent	Petroleum Spirits or Refined Solvent Naphtha
Viscosity (G-H)	Z ₁ -Z ₂
Color (Gardner), maximum	9
Acid Number of Solution	4-6
Pounds per gallon	7.7-7.9
Aliphatic Solvent Tolerance	100 to 1

The composition of the resin solids shall be:

Phthalic Anhydride	30-35%
Fatty Acids	50-55%
Iodine No. of Fatty Acids	115-130
Rosin and Derivatives	None
Natural Resins	None
Other Synthetic Resins	None
Type of Oil	Soya

971-12.3 Code T-2: Traffic Paint, Code T-2 (yellow), shall conform to the following

specifications:

971-12.3.1 Paint Composition:

Pigment, maximum	60% by weight
Vehicle, maximum	40% by weight
Volatile Matter (% of vehicle), maximum	63% by weight
Weight per gallon, minimum	12.2 pounds
Grind, NS	2-3
Consistency	72-76 KU

Drying Time: The paint shall dry sufficiently within 45 minutes so that there will no pick-up when tested according to ASTM D 711, using an unbeaded test stripe.

971-12.3.2 Pigment Composition:

Medium Chrome Yellow, minimum	25% by weight
Calcium Carbonate, Pigment, maximum	50% by weight
Magnesium Silicate, maximum	25% by weight

The manufacturer, at his option, may substitute the pigment, normal lead silicochromate, for a part or all of the medium chrome yellow, provided that the paint color still matches standards. The color of batches shall be judged visually under natural daytime light, north facing. In the case of questionable visual matches, the color of the dry paint shall be determined by Federal Test Method Standard 141, Method 4252, and

shall fall within these limits:

Reflectance	49 to 66%
Chromaticity coordinates:	
x	0.476 0.463 0.516 0.498
y	0.455 0.467 0.444 0.433

The normal lead silico chromate shall meet these requirements:

Specific gravity	3.8 min.
Wt./gallon lbs.	31.6 min.
Average particle size	6 microns
Retained on 325 mesh, %	0.3 max.
Lead oxide, %	31 to 35
Chromium trioxide, %	14 to 16
Silica, silicates, carbonates	Balance

971-12.3.3 Vehicle Composition:

Vegetable Oil, Modified Alkyd Resin solution, minimum	62.5% by weight
Thinner, Naphtha, Low-Boiling, maximum	35.8% by weight
*Anti-skinning Agent, minimum	0.2% by weight
24% Lead Naphthenate	1.25% by weight
6% Cobalt Naphthenate	0.25% by weight

*Anti-skinning agent to be a substituted phenol or oxime type.

The Alkyd Resin solution shall have the following properties:

Solid Content, by weight	59-61%
Solvent	Petroleum spirits or Refined Solvent-Naphtha
Viscosity (G-II)	Z ₁ -Z ₃
Color (Gardner), maximum	9
Acid Number of Solution	4-6
Pounds per gallon	7.7-7.9
Aliphatic Solvent Tolerance	100 to 1

The composition of the resin solids by analysis shall be:

Phthalic Anhydride	30-35%
Fatty Acids	50-55%
Iodine No. of Fatty Acids	115-130
Rosin and Derivatives	None
Natural Resins	None
Other Synthetic Resins	None
Type of Oil	Soya

971-12.4 Code T-3: Traffic paint, Code T-3 (black), shall conform to the following specifications:

971-12.4.1 *Paint Composition:*

	Min.	Max.
Pigment, % by weight	49	51
Vehicle, % by weight	49	51
Total Solids, % by weight	67.5	—
Weight per gallon, pounds	10.1	—
Consistency, KU	74	—
Drying Time, no pick-up, minutes	—	30
Drying Time, tack free, minutes	—	60

971-12.4.2 *Pigment Composition:*

	<u>% by Weight</u>	
	Min.	Max.
Carbon Black	2.5	3.0
Calcite	69.0	71.0
Magnesium Silicate	25.5	27.5
Suspending Agent	0.8	1.2

971-12.4.3 *Vehicle Composition:*

Alkyd Resin (50% solids)	62	64
Modified Phenolic Tung Oil Varnish	12	14
Shell Toluol (or equal)	21	24
24% Lead Naphthenate		1.0%
6% Cobalt Naphthenate		0.6%
6% Manganese Naphthenate		0.4%
Anti-Skinning Agent	0.2	—
Anti-skinning agent to be a substituted phenol or oxime type.		

Properties of Alkyd Resin Solution:

Solid Content	49	51
Phthalic Anhydride, % of Resin Solid	30	—
Mineral Spirits	49	51

Properties of Phenolic Tung Oil Varnish:

Non-Volatile	49	51
*Modified Phenolic Resin	12	13
Pure Phenolic Resin	12	13
Raw Tung Oil	24	26
Shell Toluol (or equal)	24	26
Shell TS-28 (or equal)	24	26

*Minimum Phenolic Resin content, 12% by weight.