

F.S.P.M.A. PAINT SPECIFICATION

DIVISION 9 - FINISHES

SECTION 09920 INTERIOR/EXTERIOR PAINT

FOR GENERAL EDUCATION FACILITIES USE

MP-40.0

**ONE OR TWO COMPONENT ALIPHATIC POLYURETHANE
WATER BASED, ZERO VOC OR VOC COMPLIANT,
ODORLESS CLEAR AND TINTED GLOSS OR SATIN**

I. SCOPE, USE AND CLASSIFICATION

- A. SCOPE: This specification covers a water base, two-component, high performance aliphatic polyurethane coating system designed to protect exterior surfaces from graffiti, staining, chemicals, fire weathering, abrasion and moisture.
- B. SURFACES: Surfaces can be the following: Concrete, masonry, metal, galvanized, vinyl, wood, aluminum, aggregate and most tiles.
- C. USE: Containers shall have labels, meeting ANSI standards and giving adequate use instructions, firmly secured to each container. Technical Specifications shall also be furnished to address additional Manufacturer's instructions. Label shall meet all federal regulation requirements of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard in CFR 1910.1200.
- D. CLASSIFICATION: The paint covered by this specification shall be available in either gloss or satin as specified by the user and shall be the following types:

Type I. Clear. Certification shall be for Type II, White only.

Type II. Tints. All tinted paints supplied to purchaser must meet all requirements of this specification except pigment. Pigment shall be of industrial grade and water based only. A non-glycol pigment.

II. REQUIREMENTS

- A. MATERIALS. The paint shall be formulated from materials as specified herein. Materials not specified shall be selected by the supplier and shall be subject to all the provisions of this specification. The paint shall be free from material which is known to be toxic to personnel under normal conditions of use.

The coating system shall be a one or two-component blend of water reducible aliphatic polymeric resins and solvent less curing agents with non-glycol pigments and additives as necessary to meet this specification. Application of coating system shall be in accordance with manufacturer's directions. Each container shall be marked with detailed application directions, including surface preparation, mixing, method of application, coverage rates and curing time.

1. PIGMENT. Any combination of water based, non-glycol pigments for any specific color shall make up the basic hiding pigment, providing the coating complies will all requirements specified herein. The titanium dioxide shall be rutile, chalk resisting type conforming to Type III of ASTM D-476. The manufacturer is given the latitude in the selection of pigments to match gloss ranges, provided that the product conforms to the requirements of this specification.
 2. VEHICLE. The vehicle shall consist of an aliphatic polyurethane resin system without solvent.
 3. THINNER: Thinner to be water. No solvent.
 4. VOC COMPLIANCE. The paint shall maintain a zero VOC content or be VOC compliant as indicated on the label or in accompanying literature.
 5. CLEANUP: Cleanup of equipment to be with water, mineral spirits or lacquer thinner. **CLEANUP OF EQUIPMENT SHALL NOT REQUIRE A SOLVENT WITH METHYLENE CHLORIDE OR METHYLETHYL KETONE (MEK).**
- B. QUANTITATIVE REQUIREMENTS. The paint shall conform to the quantitative requirements as specified in Table I.

TABLE I. QUANTITATIVE REQUIREMENTS

Characteristic (Type II, White Only)	Tolerance Requirements	
	Minimum	Maximum
1. Dry opacity at 2 mil dry film thickness	95	-
2. Directional reflectance, %	80	-
3. 60° specular gloss after 168 hours air drying using a 3 mil wet film thickness over plate glass baked with white paper.		
a. Gloss	90	-
b. Satin	-	-
4. Dry to touch, hours.	-	4
5. Recoat, Hours	-	24
6. Total solids, % by weight of paint.		
a. Gloss.....	62	77
b. Satin.....	-	-
7. Pot life according to mfg. literature, hours.	1.5	2
8. Taber abrasion after 1000 cycles and 1000 gram weight with C-17 wheel abrading a 2 mil dry film, grams.	-	80
9. Hardness	H	-
10. Adhesion, lbs/in ² .	100	-
11. Impact Resistance, in.lb	160	-

C. QUALITATIVE REQUIREMENTS:

1. COLOR. The color of the paint specified in the contract or purchase order shall match that of the standard color chip. If a color is required, the color shall match that of the standard color chip submitted by the purchaser with the bid.
2. STORAGE: Containers shall be kept closed during storage. The material should withstand storage temperatures up to 90° F. The material shall have a shelf life of 12 months.
3. ODOR. The odor shall not be putrid during or after application.
4. MATERIAL SAFETY DATA SHEET (MSDS). An MSDS clearly identifying this product, filled out completely according to the Florida Right-to-Know Law, Chapter 442, Florida Statutes, MUST BE submitted with each sample submitted for certification.
5. CONDITION IN CONTAINER. The paint, when tested as specified in Table II, shall be free from grit, seeds, skins, lumps, and livering, and shall show no more pigment settling or caking than can be reincorporated into a smooth homogenous state. In a freshly opened container, there shall be no rusting of the container.
6. RECOATING: When tested, there shall be no flashing, lifting, mottling, spotting, or wrinkling. The coating shall be recoated once the first coat is tack free and can be recoated after 24 hours.
7. SCRUBBABILITY: When the coated panels are tested there shall be no exposure of the substrate.
8. FLAMMABILITY: The materials shall be non-flammable.
9. WASHABILITY: When tested as specified, the soiling material shall be removed without streaking, staining, or tackiness and the panels shall show a reflectance recovery of 95 percent (%) minimum.
10. FLEXIBILITY: When tested as specified, there shall be no cracking, chipping or flaking.
11. HARDNESS: The paint, when tested shall meet or exceed a H to 2H pencil hardness. Dry film thickness to be applied will be 2 mils. Test to be conducted after full cure as defined as manufacturer.
12. ALKALI RESISTANCE: The paint film, tested as in III.B, shall show no change in hue and not more than very slight changes in reflectance and gloss. There shall be no evidence of blistering, softening or wrinkling.

III. TEST PROCEDURES FOR LABORATORY ANALYSIS

The failure of any test in this section shall constitute a failure of the product to conform to the specification. Unless otherwise noted, all test methods cited are the latest published revisions.

- A. PHYSICAL AND CHEMICAL PROPERTIES. The following tests shall be conducted in accordance with the methods specified in Table II.

TABLE II. TEST AND METHODS

Test	Methods
1. Conditions in container.	FTM std. 141C Method 3021 determine package condition of each component in accordance with method cited and evaluated for compliance.
2. Directional reflectance.	ASTM E 97
3. 60° specular gloss	ASTM D 523
4. Dry opacity	ASTM D 2805
5. Total solids	ASTM D 2396
6. Scrubbability	ASTM D 2486, Coat a panel as specified and allow to cure according to manufacture's recommendations to 50% R.H. and 75%. Test the coating for 1,000 cycles, and check for compliance with the requirements.
7. Storage stability in full container.	FTM std. 141C, Method 3021.1; determine skinning for the "Base" component after 24 hours in accordance with method cited.
8. Washability	ASTM D 3450, Make up panels according to method cited in ASTM test and allow to cure according to manufacturer's recommendations. Take both reflectance and gloss readings on the coating in the area to be soiled. Soil and wash panels using non-abrasive scrubbing medium for 100 cycles. Repeat reflectance readings in the soiled area and compare results with the requirements.
9. Pencil hardness	ASTM D 3363
10. Drying	ASTM 1640
11. Recoating	Prepare a cold rolled steel panel by drawing down a 3 mils wet film of the coating. Air-dry for 8 hours at 50% R.H. & 75° F. Apply a second coat and then air-dry at room temperature. When tested, there will be no flashing, lifting, mottling, or wrinkling.
12. Flexibility	Draw down a film of the material with B5-DDB-3 on cleaned tin panels. Air dry for 48 hours at 75° F and 50% relative humidity and bend rapidly over 1/8-inch mandrel. Examine.
13. Immersion (Alkali Resistance)	ASTM D 1308, Prepare specimens for testing by using a plate glass as in Method 2012.1 of Federal Test Method Standards No. 141C. Apply enamel with suitable applicator obtaining a dry film thickness of 2.0 (+/- 0.3) mil and a width of 5 1/2 ". Allows enamel to dry in a horizontal position for 120 hrs. at 77 (+/-3)° F and 50 (+/-5)% relative humidity. Place 5 drops of 2% by weight aqueous sodium hydroxide solution on the paint and immediately cover the surface with a 50 mm watchglass. After 2 hrs, remove the watchglass, wash off the solution. Allow 2 hrs. for recovery and examine for compliance with II.C.12.
14. Impact Resistance	ASTM D 2794

IV. METHODS OF SAMPLING, INSPECTION AND OTHER TESTS

- A. **SAMPLING:** At the option of the purchaser, representative samples shall be taken from deliveries made under this invitation and submitted for quality control testing. If the purchaser's sample fails, the manufacturer shall pay for the actual cost of testing. Failure of any sample so taken to comply with the specification requirements shall invalidate any purchase contract made under this invitation unless the manufacturer requests a repeat quality control test. This second sample shall be from the same batch. The manufacturer shall pay for the second quality control test should the sample fail, and this invalidates any purchase contract made under this invitation. If the second sample passes, the manufacturer is not responsible for paying the actual cost of the test, and results obtained from the second quality control test shall prevail.

- B. **INSPECTION:** Physical inspection of package, condition, quantity, and labeling shall be made at point of delivery by the purchaser. MSDS shall be submitted with each shipment in accordance with the Florida Right-to-Know Law, Chapter 442, Florida Statutes, and shall be identical to the MSDS supplied for initial certification.

NOTE: TESTING TO MEET THIS SPECIFICATION DOES NOT INCLUDE AN IN-USE PERFORMANCE TEST. ALL EDUCATIONAL AGENCIES SHOULD CONSIDER AN IN-USE PERFORMANCE TEST BEFORE PURCHASING THIS PRODUCT.

ORIGINAL MP-40.0 - APPROVED

PRESIDENT FLORIDA SCHOOL PLANT MANAGEMENT ASSOCIATION

CHAIR FSPMA PAINT SPECIFICATIONS COMMITTEE