MATERIAL AND EQUIPMENT STANDARD

FOR

COLORED ALKYD PAINT FOR TOP COAT

(FINISH)

EXCEPT WHITE

ORIGINAL EDITION

MAY 1993

This standard specification is reviewed and updated by the relevant technical committee on Aug. 1998. The approved modifications are included in the present issue of IPS.

CONTENTS : PAGE No.

1. SCOPE

This Standard specification which is generated from SSPC-paint 104 covers the minimum requirements for the composition, analysis, properties, storage life, packaging, inspection and labeling of alkyd paint for top coat (finish).

Note:

This standard specification is reviewed and updated by the relevant technical committee on Aug. 1998. The approved modifications by T.C. were sent to IPS users as amendment No. 1 by circular No. 64 on Aug. 1998. These modifications are included in the present issue of IPS.

2. REFERENCES

Throughout this Standard the following dated and undated standards/codes are referred to. These referenced documents shall, to the extent specified herein, form a part of this standard. For dated references, the edition cited applies. The applicability of changes in dated references that occur after the cited date shall be mutually agreed upon by the Company and the Vendor. For undated references, the latest edition of the referenced documents (including any supplements and amendments) applies.

SSPC (STEEL STRUCTURES PAINTING COUNCIL)

SSPC-PA Guide 3	“A Guide to Safety in Paint Application”
SSPC 104	"White or Tinted Alkyd Paint"

ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

(Specifications for Ingredients)

(Specifications for Packaging)

D3951	"Standard Practice for Commercial Packaging"

(Test Methods for Properties)

D185	"Coarse Particles in Pigments, Pastes and Paints"
D523	"Specular Gloss"
D562	"Consistency of Paints Using the Stormer Viscometer"
D1208	"Common Properties of Certain Pigments"
D1210	"Fineness of Dispersion of Pigment Vehicle Systems"
D1296	"Odors of Volatile Solvents and Diluents"
D2369	"Volatile Content of Paints"
D 2371	“Pigment Contract of Solvent Type Paints”
D2801	"Leveling Characteristics of Paints by Draw Down Method"
D3278	"Flash Point of Liquids by Setaflash Closed Tester"

UFS (US FEDERAL STANDARDS)

(Standard Specifications for Ingredients)

(US Federal Test Method Standard No. 141)

Method 3011	"Condition in Container"
Method 3021	"Skinning (Partially Filled Container)"
Method 4053	"Nonvolatile Vehicle Content"
Method 4061	"Drying Time"
Method 4081	"Water Content (Reflux Method)"
Method 4203	"Reducibility and Dilution Stability"
Method 4321	"Brushing Properties"
Method 4331	"Spraying Properties"
Method 4494	"Sage Test (Multinotch Blade)"
Method 4541	"Working Properties and Appearance of Dried Film"
Method 6221	"Flexibility"

ANSI (AMERICAN NATIONAL STANDARDS INSTITUTE)

ANSI Z129.1	"Precautionary Labeling of Hazardous Industrial Chemicals Coding and Special Purposes"

BSI (BRITISH STANDARDS INSTITUTION)

BS 381 C	"Colors for Identification, Coding and Special Purposes"
BS 5493	"Code of Practice for Protective Coating of Iron and Steel Structures Against Corrosion"

IPS (IRANIAN PETROLEUM STANDARDS)

IPS-E-GN-100	“Units”
IPS-E-TP-100	"Paints"

3. UNITS

International System of Units (SI) in accordance with IPS-E-GN-100 shall be used.

4. COMPOSITION

4.1 Ingredients and Proportions

Ingredients and proportions shall be as specified in Table 1.

The paint based on the specified ingredients shall be uniform, stable in storage, and free from grit and coarse particles no rosin or rosin derivatives may be used. Beneficial additives such as anti-skinning agents, suspending agents, or wetting aids may be added.

4.2 Percentage

This paint shall contain approximately 45% by volume of nonvolatile film forming solids (pigment and binder).

TABLE 1 - COMPOSITION

INGREDIENTS	TYPICAL COMPOSITION NOMINAL% BY VOLUME	INGREDIENT STANDARDS
PIGMENT	FADE RESISTANT CHEMICAL RESISTANT, COLORED PIGMENT	BS 5493
SOLIDS (NOMINAL %) Min. NONVOLATILE VEHICLE + PIGMENT	45	BS 5493
VOLATILES (Max.)	55	ASTM D 2369
TOTAL	100%	

5. ANALYSIS

5.1 The paint shall conform to the composition (analysis) requirement of Table 2.

TABLE 2 - ANALYSIS

CHARACTERISTICS	REQUIREMENT Wt%	ASTM US FEDERAL STD. No. 141	
VOLATILES (Max.)	30	D 2369	
NONVOLATILE VEHICLE (Min.) CALCULATED BY DIFFERENCE	70	-	
UNCOMBINED WATER (Max.)	1.0	D 1208	4081
COARSE PARTICLE AND SKINS, AS RETAINED ON STANDARD 0.45 mm SIEVE OPENING (325 MESH SCREEN) (Max.)	1.0	D 185	---

6. PROPERTIES

6.1 Requirements

The paint shall meet the requirements of Table 3 and Sections 6.2 through 6.8.

6.2 Odor

The odor shall be normal for the materials permitted (ASTM Standard D 1296).

6.3 Color

The color shall be as specified in purchase order with reference to Table 4.

6.4 Compatibility

There shall be no evidence of incompatibility of any of the ingredients of the paint when two volumes of the paint are slowly mixed with one volume of mineral spirits (US Federal Standard No. 141, Method 4203).

6.5 Skinning

There shall be no skinning in a three quarters filled closed container after 48 hours when tested in the standard manner specified in US Federal Standard No. 141, Methods 3021.

6.6 Working Properties

The paint shall be easily applied by all three methods (Brush, Spray, Roller) when tested in accordance with US Federal Standard No. 141, Method 4321, 4331 and 4541. The paint shall show no streaking, running, or sagging after drying.

6.7 Flexibility

The film prepared as described in US Federal Standard No. 141, Method 6221, after baking 24 hours at 93°C, shall show no cracking when suddenly chilled to 0°C and quickly bent sharply on itself through 180° over a 3 mm mandrel.

The film on the bent part of the panel shall show satisfactory adhesion.

6.8 Gloss

The gloss shall be no lower than eggshell (ASTM Standard D 523).

TABLE 3 - PROPERTIES

CHARACTERISTIC	REQUIREMENTS	ASTM US. METHOD	FEDERAL STD. No. 141
PAINT CONSISTENCY VISCOSITY* SHEAR RATE 200 rpm			
GRAMS	120		
KREB UNITS Min.	65	D 562	---
GRAMS	220		
KREB UNITS Max.	85		---
FINENESS OF GRIND, MICRONS	25	D 1210	---
" " HEGMAN UNITS	6		
DRYING TIME, HOURS DRY HARD Max.	18	---	4061
FLASH POINT °C Min.	30.0	D 3278	---
SAG RESISTANCE, MICRONS Min. US Federal 4494	152	D 2801	---

*** Viscosity 48 hours or more after manufacture.**

TABLE 4 - COLOR

PAINT COLOR	COLOR No. TO BS 381 C
ARCTIC BLUE	112
SEA GREEN	217
BRILLIANT GREEN	221
CANARY YELLOW	309
LIGHT STRAW	384
MIDDLE BROWN	411
SIGNAL RED	537
LIGHT ORANGE	567
LIGHT GREY	631

7. STORAGE LIFE AND PACKAGING

7.1 Condition in Container

The paint shall show no thickening, curding, gelling. or hard caking when tested as specified in US Federal Standard No. 141, Method 3011, after storage for 24 months from the date of delivery, unless otherwise specified by company in a full, tightly covered container.

7.2 Packaging

The packaging shall meet the relevant requirement of ASTM D3951 (88).

8. INSPECTION

8.1 All materials supplied under this Standard specification shall be subject to timely inspection by the purchaser or his authorized representative. The purchaser shall have the right to reject any material(s) supplied which is (are) found to be defective under this Standard specification. In case of dispute, the arbitration or settlement procedure, established in the procurement documents shall be followed.

8.2 Samples of any or all ingredients used in the manufacture of this paint may be requested by the purchaser and shall be supplied upon request, along with the supplier's name and identification for the material.

8.3 Unless otherwise specified, the methods of sampling and testing should be in accordance with US Federal Test Method Standard No. 141, or applicable methods of the American Society for Testing and Materials (ASTM).

9. LABELING

9.1 Labeling Standard

Labeling shall be in accordance with ANSI Standard Z129.1 "Precautionary Labeling of Hazardous Industrial Chemicals."

9.2 Marking of Containers

Each container shall be legibly marked with the following information:

Name: Colored Alkyd Paint for Top Coat (Finish) Except White .....

Specification: IPS-M-TP-130 .....

MESC No. : .....

No. of component .....

Maximum temperature resistance .....

Type of spray .....

Kind and size of spray nozzle tip .....

Cleaning material .....

Flash point °C.....

Pot life (hours) .....

Drying time for overcoating .....

Kind of thinner .....

Color: (Paint color and color number as specified in purchase order according to BS 381C and Table 4 of this Standard specification).

Lot Number: .....

Stock Number: .....

Date of Manufacture: .....

Quantity of Paint in Container: .....

Information and Warnings if needed .....

Manufacturer's Name and Address: .....

Design Guide: For guidance on the usage of this Paint for Various application/environments and temperature range, reference shall be made to IPS-E-TP-100 "Paints".

9.3 Directions for Use

The following directions for use shall be supplied with each container of paint:

Directions for use of Alkyd Paint

This paint is intended for use as top coat (finish) over rust inhibitive primers on structural steel, over intermediate paint, over itself, or over other oleoresinous paint. All oil, grease, dust, and loose or nonadherent paint shall be removed, as residues of oil and grease remaining on the surface will result in decreased paint performance. If the undercoat is damaged, the steel shall be spot cleaned and spot primed with rust inhibitive primer.

Mix paint thoroughly before use. If the pigment has settled, pour off most of the liquid. Thoroughly mix the pigment with the remaining liquid, taking care to scrape all the pigment off the bottom of the can. Gradually add the poured off liquid into a clean container and mix thoroughly. Mixing may be made easier by transferring contents to a larger container or by pouring the paint to and from another container. Examine bottom of container for unmixed pigment. Screen paint before applying.

Thin paint if necessary, using only mineral spirits. For brush application under normal conditions, no thinning should be necessary. For spray applications, add up to one liter of thinner per eight liters of paint when necessary.

Apply by brush or spray to the specified film thickness or if none is specified, to at least 38 microns dry or approximately 75 microns wet. The surface to be painted shall be dry; the surface temperature shall be at least 3°C above the dew point; and the temperature of the air shall be over 4°C. Do not paint outdoors in rainy weather or if freezing temperatures are expected before the paint dries.

Allow paint at least 18 hours drying time in good weather before recoating.

9.4 Direction for Safety

The following directions for safety shall be supplied with each container of paint:

Paints are hazardous because of their flammability and potential toxicity. Proper safety precautions shall be observed to protect against these recognized hazards. Safe handling practices are required and should include, but not be limited to, the provisions of SSPC-PA Guide 3, "A Guide to Safety in Paint Application" and to the following:

- Keep paints away from heat, sparks, and open flame during storage, mixing, and application. Provide sufficient ventilation to maintain vapor concentration at less than 25% of the lower explosive limit.

- Avoid prolonged or repeated breathing of vapors or spray mists, and prevent contact of the paint with the eyes or skin.

- Clean hands thoroughly after handling paints and before eating or smoking.

- Provide sufficient ventilation to insure that vapor concentrations do not exceed the published permissible exposure limits. When necessary, supply appropriate personal protective equipment and enforce its use.

This paint may not comply with some air pollution regulations because of its hydrocarbon solvent content.

Ingredients in this paint which may pose a hazard include hydrocarbon solvent, and lead-drier. Applicable regulations governing safe handling practices shall apply to the use of this paint.