

MATERIAL AND EQUIPMENT STANDARD**FOR****ALKYD PAINT (BLACK)****AS****INTERMEDIATE AND TOP COAT (FINISH)****ORIGINAL EDITION****MAY 1993**

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

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1. SCOPE

This Standard specification which is mainly generated from SSPC-Paint No. 102 covers the minimum requirements for the composition, analysis, properties, storage life and packaging, inspection and labeling of alkyd paint (black) to be used as intermediate and topcoat (finish).

Note:

This standard specification is reviewed and updated by the relevant technical committee on Sep. 1998. The approved modifications by T.C. were sent to IPS users as amendment No. 1 by circular No. 63 on Sep. 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) VOL. 2

SSPC No. 102	"Black Alkyd Paint"
SSPC-PA Guide 3	"A Guide to Safety in Paint Application"

ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

(Specifications for Ingredients)

D 185	"Test Methods for Coarse Particles in Pigments, Pastes, and Paints"
D 235	"Petroleum Spirits (Mineral Spirits)"
D 523	"Test Method for Specular Gloss"
D 561	"Carbon Black"
D 600	"Liquid Paint Driers"
D 1208	"Test Methods for Common Properties of Certain Pigments"
D 1296	"Test Method for Odor of Volatile Solvents and Diluents"
D 1475	"Test Method for Density of Paint, Varnish, Lacquer, and Related Products"
D 1542	"Test Method for Qualitative Detection of Rosin in Varnishes"
D 2369	"Test Method for Volatile Content of Coatings"
D 2371	"Test Method for Pigment Content of Solvent-Reducible Paints"
D 3278	"Test Methods for Flash Point of Liquids by Setaflash Closed-Cup Apparatus"

(Specifications for Packaging)

D 3951(88) "Standard Practice for Commercial Packaging"

UFS (US FEDERAL STANDARDS)

(Standard Specifications for Ingredients)

TT-R-266 "Resin, Alkyd: Solutions"
 TT-T-291 "Thinner, Paint, Mineral Spirits, Regular and Odorless"

(Federal Test Method Standard No. 141)

Method 3011 "Condition in Container"
 Method 3021 "Skinning partially (Filled Container)"
 Method 4021 "Pigment Content (Centrifuge)"
 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 "Sag 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"

IPS (IRANIAN PETROLEUM STANDARDS)

[IPS-E-GN-100-SI](#) "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 antiskinning agents, suspending agents, or wetting aids may be added.

4.2 Percentage

This paint contains approximately 37% by volume of nonvolatile filmforming solids (pigment and binder).

TABLE 1 - COMPOSITION

	<u>TYPICAL COMPOSITION</u>		<u>INGREDIENT STANDARDS</u>	
	Wt. %	Vol. %	ASTM	US FEDERAL
PIGMENT: (5.5 ±0.5 Wt. %) CARBON BLACK	5.5	3.0	D 561	---
VEHICLE: (94.5 ±0.5 Wt. %)				
ALKYD RESIN SOLIDS	41.0	34.0	---	TT-R-266
MINERAL SPIRIT THINNER	53.5	63.0	D 235	TT-T-291, GRADE I
DRIERS	---	---	D 600 CLASS B	---
TOTALS	100.0	100.0		

5. ANALYSIS

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

TABLE 2 - ANALYSIS

CHARACTERISTICS	<u>REQUIREMENTS</u>		ASTM METHOD	US FEDERAL STD. No. 141
	Min. Wt. %	Max. Wt. %		
PIGMENT	5.0	6.0	D 2371	4021
VOLATILES	--	55.0	D 2369	--
NONVOLATILE VEHICLE				
CALCULATED BY DIFFERENCE	40.0	--	--	4053
UNCOMBINED WATER	--	1.0	D 1208	4081
COARSE PARTICLES AND SKINS, AS RETAINED ON STANDARD 0.045 mm SIEVE OPENING (325 MESH SCREEN)	--	0.5	D 185	--
ROSIN OR ROSIN DERIVATIVES	--	0	D 1542	--

6. PROPERTIES

6.1 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 D 1296).

6.3 Color

The color shall be typical of carbon black.

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, Method 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, Methods 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 (200°F), shall show no cracking when suddenly chilled to 0°C (32°F) and quickly bent sharply on itself through 180 ° over a 3 mm (1/8 inch) mandrel. The film on the bent part of the panel shall show satisfactory adhesion.

6.8 Gloss

The gloss shall be high (ASTM Standard D 523).

TABLE 3 - PROPERTIES

CHARACTERISTICS	REQUIREMENTS		ASTM METHOD	US FEDERAL STD. No. 141
	Min.	Max.		
VISCOSITY* SHEAR RATE 200 rpm				
GRAMS	120	180	D 562	--
KREB UNITS	65	78	D 562	--
DENSITY Lit	0.91	--	D 1475	--
DRYING TIME, HOURS				
TACK FREE	--	10	--	4061
DRY HARD	--	18	--	4061
FLASH POINT, DEGREES °C	38	--	D 3278	--
SAG RESISTANCE, mic	152	--	D 2801	4494

* Viscosity 48 hours or more after manufacture.

7. STORAGE LIFE AND PACKAGING

7.1 Condition in Container

The paint shall show no thickening, curdling, gelling, or hard caking when tested as specified in US Federal Standard No. 141, Method 3011, after storage for 12 months from the date of delivery, in a full, tightly covered container.

7.2 Packaging

The packaging, shall meet the relevant requirements of ASTM D 3951 (88).

8. INSPECTION

8.1 All materials supplied under this 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 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 Refer to ANSI Standard Z 129.1 "Precautionary Labeling of Hazardous Industrial Chemicals".

9.2 Marking of Containers

Each container shall be legibly marked with the following information:

Name: Alkyd Paint (Black) as intermediate and top coat (finish)

Specification: [IPS-M-TP-165](#)

MESC No. :

No. of components

Maximum temperature resistance

Type of spray

Kind and size of spray nozzeltip

Cleaning material

Flash point °C

Pot life (hours)

Drying time for overcoating

Kind of thinner

Color: Black

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/environment and temperature range reference shall be made to [IPS-E-TP-100](#)

9.3 Directions for Use

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

Directions for Use of Alkyd Paint (Black)

This paint is intended for use as an intermediate or finish coat over rust inhibitive primers on structural steel, over itself, or over other oleoresinous paints. 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 into a clean container.

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 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 only 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 8 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 100 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 Directions 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.