

MATERIAL STANDARD

FOR

ACRYLIC SILICON FINISH PAINT

FOR

TEMPERATURE APPLICATIONS UP TO 230°C

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1. SCOPE

This Standard specification covers the minimum requirements for the composition, properties, storage life and packaging, inspection and labeling of acrylic silicon paint.

The paint is intended for protection of equipment (stacks, cat crackers, boilers, heat exchangers, etc.), which operate up to 230°C. In this case the steel surface shall be treated with organic or inorganic zinc rich primer.

2. REFERENCES

Throughout this Standard the following standards and codes are referred to. The editions of these standards and codes that are in effect at the time of publication of this Standard shall, to the extent specified herein, form a part of this Standard. The applicability of changes in standards and codes that occur after the date of this Standard shall be mutually agreed upon by the Company and the Vendor:

ANSI (AMERICAN NATIONAL STANDARD INSTITUTE)

ANSI Z 129.1 "Precautionary Labeling of Hazardous Industrial Chemicals"

ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

Specification for Packaging:

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

Test Methods for Properties:

D-2697 "Test Method for Volume Volatile Matter in Clear or Pigment Coatings"

BSI (BRITISH STANDARD INSTITUTION)

BS 381 C "Colors for Identification Coding and Special Purposes"

IPS (IRANIAN PETROLEUM STANDARDS)

C-TP-101 "Surface Preparation"
(Not Applicable for Procurement)

E-TP-100 "Paints" (Table 1)

SSPC (STEEL STRUCTURES PAINTING COUNCIL VOLUME 2)

SSPC-PA "Guide 3, A Guide to Safety in Paint Application"

US FEDERAL STANDARDS

Federal Test Method Standard No. 141 "Paint, Varnish, Laquer, and Related Materials"

Method 595 "Color"

Method 3011.1 "Condition in Container"

Method 4021.1	"Pigment Content (Ordinary Centrifugal)"
Method 4053	"Non Volatile Vehicle Content"
Method 4321	"Brushing Properties"
Method 4331	"Spraying Properties"
Method 4401	"Odor Test"
Method 4541	"Working Properties and Appearance of Dried Film"
Method 6221	"Flexibility"

3. UNITS

This Standard is based on International System of Units (SI), except where otherwise is specified.

4. COMPOSITION

The paint shall consist of acrylic silicone resin, pigment and additives together with solvents needed to give consistency suitable for application by spray, brush or other approved methods. The solid content of the paint shall not be less than 40 percent by volume when tested by ASTM Test Method D2697.

5. PROPERTIES

The paint shall meet the requirements of Paragraphs 5.1 through 5.5 inclusive.

5.1 General Properties

The paint shall be suitable for temperature services up to 230°C where color is required. It shall withstand thermal shock from 200 to 0°C and temperature surges to 260°C minimum. The paint shall exhibit excellent weathering properties thereby making it suitable for use as a topcoat in coastal and severe industrial environments.

5.2 Odor

The odor of the paint shall not be offensive, irritating or putrid during and after application, when tested in accordance with US Federal Standard No. 141 Test Method 4401.

5.3 Color

The color shall be as specified by the purchaser with reference to Table 1 or US Federal Standard No. 141 Method 595 and/or other color.

TABLE 1

PAINT COLOR	COLOR No. TO BS 381 C	COLOR No. TO RALL (APPROX)
ARCTIC BLUE	112	5024
SEA GREEN	217	6017
BRILLIANT GREEN	221	6002
CANARY YELLOW	309	1018
LIGHT STRAW	384	1000
MIDDLE BROWN	411	8007
SIGNAL RED	537	3020
LIGHT ORANGE	557	2000
LIGHT GREY	631	7033
ALUMINUM	—	—

5.4 Working Properties

The paint shall be easily applied by brush and spray when tested in accordance with US Federal Standard No. 141 Methods 4321, 4331. The paint shall show no streaking, running or sagging after drying.

5.5 Flexibility

When paint subjected to the flexibility test, it shall show no evidence of cracking, chipping or flaking, when tested in accordance with US Federal Standard No. 141 Test Method 6221.

6. STORAGE LIFE AND PACKAGING

6.1 Storage Life

The product shall meet the requirements of Clause 5 after storage of at least 24 months from the date of delivery, in a full tightly covered container at normal condition.

6.2 Condition in Container

The paint as received shall show no evidence of livering, shinning, or hard settling of pigment, the container shall not be affected. The material shall be easily dispersed in liquid portion by hand stirring to form a smooth, homogeneous paint free from persistant foam when tested in accordance with US Federal Standard No. 141 Test Method 3011.1.

6.3 Packaging

The packaging shall meet the relevant requirement of ASTM D 3951 (88) unless otherwise specified by the Purchaser.

6.4 Packing

Packing shall be accomplished in a manner which will insure acceptance by common carrier, at lowest rate, and will afford protection against physical or mechanical damage during shipment.

6.5 Marking

Shipment marking information, in addition to the labeling required (see 8.2) shall be provided on interior package and exterior shipping containers.

7. INSPECTION

7.1 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.

7.2 The supplier shall be responsible for the performance and costs for all laboratory test requirements as specified in this Standard specification.

7.3 The supplier shall place free of charge at the disposal of the purchaser's inspector(s) all means necessary for carrying out their inspection, specification results or tests, checking of conformity of materials with this Standard specification, checking of marking and packing and temporary acceptance of materials.

7.4 Samples submitted to the purchaser will be tested in the purchaser's laboratory or in a responsible commercial laboratory designated by the Purchaser.

7.5 The supplier shall furnish the purchaser with a certified copy of results of tests made by the manufacturer covering physical and performance characteristics of each batch (see 7.8) of product to be supplied under this Standard specification. The supplier shall furnish, or allow the purchaser to collect samples of the material representative of each batch of product. Certified test reports and samples (see 7.7) furnished by the supplier or collected by the purchaser shall be properly identified with each lot (see 7.8) of product.

7.6 Prior to acceptance of the supplier's material, samples of material submitted by the supplier or collected by the purchaser will be tested by the purchaser. If any sample is found not to conform to this Standard specification, material represented by such sample will be rejected.

7.7 The number of samples for testing shall consist of 10 percent of the lot or batch (see 7.8), but in no case shall be less than one or more than 10 containers. The results of the tests on two specimens (top and bottom) shall be averaged for each test specified in this Standard specification to determine conformance with the specified requirements.

7.8 A lot or batch shall consist of an indefinite number of containers offered for acceptance and filled with a homogeneous mixture of material from one isolated container, or filled with a homogeneous mixture of material manufactured by a single plant run (not exceeding 24 hours) through the same processing equipment, with no change in ingredient material.

8. LABELING

8.1 Refer to ANSI Standard Z 129.1 "Precautionary Labeling of Hazardous Industrial Chemicals".

8.2 Marking of Containers

Each container shall be legibly marked with the following information:

Name: ACRYLIC SILICON PAINT

Specification : IPS-M-TP-168

- MESC. No.:
- Flash point °C:
- Stock No.:
- Date of manufacture:
- Quantity of paint in container:
- Kind of thinner:
- Maximum temperature resistance:
- Type of spray:
- Kind and size of spray nozzle tip:
- Pot life (hours):
- Lot or batch number:
- Information and warnings (if needed):
- Manufacture'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.

8.3 Direction for Use

In addition to the manufacturer's instructions for use, the following directions shall also be supplied with each container of paint, "This paint is intended for use on primed structural steel. The surface of steel shall be prepared in accordance with IPS-C-TP-101 before applying the primer".

For use on steel surfaces subjected to high temperatures (up to 230°C). The primer used shall be organic or inorganic zinc-primer.

Apply by brush or spray to the specified film thickness or, if none is specified, to at least 38 microns dry. When application is by spraying, the equipment and operator technique should be properly adjusted to prevent dry spray and to deposit a wet film of paint on the substrate. Clean the equipment with suitable thinner both before and after use. The surface to be painted shall be dry and the surface temperature shall be at least 3°C above the dew point.

8.4 Direction for Safety

In addition to the manufacturer's instructions for safety, the following directions shall also be supplied with each container of paint.

- This paint is hazardous because of its 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 paint 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 paint and before eating & smoking.
- Provide sufficient ventilation to insure that vapor concentration 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 regulation because of its hydrocarbon solvent content.