

**SAUDI STANDARDS, METROLOGY AND
QUALITY ORGANIZATION**

Project No. 33478 /2023
Zinc Rich Epoxy Primer Coating

ICS 87.040.00

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PAINTS AND VARNISHES – Zinc Rich Epoxy Primer Coating

1. SCOPE AND FIELD OF APPLICATION

This standard specifies two components polyamide cured zinc rich epoxy solvent-based primer. It is suitable for anti-corrosion protection of steel structures.

2. COMPLEMENTARY REFERENCES

- 2.1 SASO ISO 4618** “paints and varnishes - terms and definitions”
- 2.2 SASO ISO 15528** “Paints, varnishes and raw materials for paints and varnishes – Sampling”.
- 2.3 SASO ISO 1513** “Paints and Varnishes – Examination and Preparation of samples for Testing.
- 2.4 SASO ISO 1514-2004** Paints and Varnishes-Panels for testing
- 2.5 SASO ISO 3251 Paints, varnishes and plastics** - Determination of non-volatile-matter content .
- 2.6 SASO 2194:2003** "Paints and Varnishes – Test Methods for Consistency of Paints using the Stormer Viscometer"
- 2.7 SASO ISO 6503 Paints and varnishes** - Determination of total lead - Flame atomic absorption spectrometric method
- 2.8 SASO ISO 2811-4** “Standard Test Method for Density of Liquid Coatings”
- 2.9 2.14 SASO 868/1994** “Paints & Varnishes – Determination of Flash Point”.
- 2.10 SASO ISO 1524** “Paints & Varnishes – Determination of Fineness of Grind”.
- 2.11 SASO 2706** “Paint and Varnishes- Determination of Salt Spray Resistance”.
- 2.12 SASO 2708** “Paint and Varnishes - Determination of Adhesion by Cross Cut Method”.

- 2.14 **SASO-ISO 6272-2** "Paint and Varnishes - Rapid Deformation-Impact Resistance test
- 2.15 **SASO ISO 9117-4:** Paint and Varnishes – Drying test – Part 4: Test using a mechanical recorder.

3. DEFINATION

3.1 Component

The liquid portion of the paint composed of the binder, solvents, pigments and additives.

3.1.1 Base: The component of the paint consisting the epoxy resin, pigments, suitable solvents and additives.

3.1.2 Hardener: The hardener shall consist of a blend of Polyamide, mixture of Solvent and additives.

- 3.2 **Classification:** will be as per the Zinc dust content level% when test as per (ASTM D6580-17) and level determination will be as per SSPC paint specification no. 20

3.3

Levels	Minimum Zinc content requirement
Level 1	≥85% by weight in the dry film
Level 2	77 - 85% by weight in the dry film
Level 3	65 - 77% by weight in the dry film

4. REQUIREMENTS

4.1 Condition in Container

The paint shall be free of grits, skins or lumps and shall show no more pigment settling or caking than can readily be reincorporated to a smooth homogeneous state. The paint shall mix readily with a suitable thinner, in accordance with the manufacturer's recommendations, to a smooth homogeneous state.

4.2 Non-Volatile Content

The non-volatile content of the mixed coating shall be not less than $85\% \pm 2$ of total mass of the paint. when tested as per 2.5.

4.3 Consistency

The paint after adding the hardener shall be in such a condition that stirring readily produces a smooth, uniform mixture of good consistency. It shall have viscosity not less than 80 KU $23 \pm 1^\circ\text{C}$ when tested as per 2.6.

4.4 Density

The mixing paint shall have mass density not less than 2.3 kg/l when tested as per 2.8

4.5 Lead Content

The lead content shall not exceed 0.009 % of the total mass of the paint when tested as per 2.7.

4.6 Application Properties

The paint shall have satisfactory application properties when used as per manufacturers recommendations and shall give paint film free from surface defects such as running, sagging and streaking.

4.7 Appearance of dried film

The dried film shall have smooth finish, free of sagging or wrinkling and shall not be inferior to a film prepared in the same way from the approved reference sample.

4.8 Pot Life

The mixed paint should have a pot life of not less than 4 hours when tested at $(23 \pm 1)^\circ\text{C}$ when used as per manufacturers recommendations.

4.9 Flash Point

The flash point shall not be less than 25°C as per clause 2.14.

4.10 Fineness of grind

The fineness of grind of the paint shall not be more than 50 μm when

tested as per 2.15

4.11 Storage Stability

The paint shall attain its properties, being kept in its original airtight containers at $(25 \pm 2^{\circ}\text{C})$ or at manufacturer's recommendations storage conditions, for a period not less than 12 months without the formation of peeling on the surface or precipitated within this period. and the paint shall be homogenized.

4.12 Salt spray test

The paint when applied at DFT of 60-80 μm , in accordance with the manufacturer's instructions, on an abraded and degreased panel, shall not show any corrosion or rust or any other problems after 500 hours, when tested according to clause no. 2.10

4.13 Adhesion - Cross Cut

The mixed paint when applied at DFT of 60-80 μm , in accordance with the manufacturer's instructions, on an abraded and degreased panel, & allowed to dry for 7 days at $(23 \pm 1)^{\circ}\text{C}$. and at a relative humidity of not more than $(50\% \pm 5)$ shall exhibit a minimum adhesion loss of not more than 5 % when tested in accordance with clause 2.13, using a 2 mm cutting tool.

4.14 Impact Test

the mixed paint when applied at DFT of 60-80 μm , in accordance with the manufacturer's instructions, on an abraded & degreased panel & allowed to dry for 7 days at $(23 \pm 1)^{\circ}\text{C}$. and at a relative humidity of not more than $(50\% \pm 5)$ shall withstand a direct impact of 500 gms weight from 400 mm height. There should not be any cracking or peeling of the paint. when tested as per clause 2.14.

4.15 Drying time

The paint when applied at $(23 \pm 2)^{\circ}\text{C}$ and relative humidity of $(50\% \pm 5)$ the paint shall become surface dry in not more than 3 hours, and shall become hard dry in not more than 6 hours when tested as per 2.15.

5 SAMPLING

5.1 A representative sample of not less than 500 ml shall be taken from the paint in accordance with Saudi standard mentioned in 2.1.

5.2 Samples shall be prepared for testing in accordance with Saudi standard mentioned in 2.2 .

6 METHODS OF TESTING

Tests shall be carried out on the filled containers as well as on test samples taken in accordance with item 2.0.

6.1 Condition in Container

6.2 Non-Volatile Content

6.3 Consistency

6.4 Lead Content

6.5 Application Properties

6.6 Appearance of dried film

6.7 Flash Point for SB

6.8 Fineness of grind

6.9 Impact Resistance

6.10 Adhesion Test

6.11 Density

7 PACKAGING

The paint shall be packed in clean, dry, airtight suitable containers. The containers shall be so filled as to leave an ullage of 15% minimum.

8 MARKING

Each container shall be legibly and indelibly marked with the following information in Arabic or in both Arabic and English.

8.1 Name, type and colour of the paint.

8.2 Name of the manufacturer and/or the trademark.

8.3 Country of origin and whether manufactured under license to a named

- brand/manufacturer
- 8.4 Batch number.
- 8.5 Date of production in month and year.
- 8.6 Mass and/or volume of the paint.
- 8.7 Application instructions.
- 8.8 Warning relating to flammability and toxicity where required.

REFERENCE: