

DRAFT TANZANIA STANDARD

Aluminium finishing paint – Specification

TANZANIA BUREAU OF STANDARDS

1st edition

0. FOREWORD

0.1. This Tanzania Draft Standard was prepared by the Technical Committee on *Paints and varnishes*. During the preparation of this standard reference was made to the following South African National Standard as published by SABS Standards Division:

SANS 682:2007, *Aluminium paint*.

0.2. For the purpose of deciding whether a particular requirement of this standard is complied with, the final value observed or calculated expressing the result(s) of a test or analysis shall, be rounded off in accordance with TZS 4 (see clause 2). The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

This Draft Tanzania Standard specifies requirements and methods of sampling and test for aluminium paint for use as a finishing coat on primed surfaces for exterior and interior exposure. This paint is suitable for use as roof paint on suitably primed or previously painted galvanized iron.

2. Normative references

The following normative references are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the normative references (including amendments) applies.

CDC 13 (5664), *Paints and varnishes - Determination of brush and roller properties*

ISO 1247, *Aluminium pigments for paints*.

ISO 11341, *Paints and varnishes – Artificial weathering and exposure to artificial radiation – Exposure to filtered xenon-arc radiation*.

TZS 525:2016/ISO 1513, *Paints and varnishes - Examination and preparation of samples for testing*

TZS 4, *Rounding off numerical values*

TZS 59

TZS 552/ISO 6860, *Paints and varnishes - Bend test (conical mandrel)*.

TZS 602:2015/ISO 2884-1:1999 *Paints and varnishes — Determination of viscosity using rotary viscometers — Part 1: Cone-and-plate viscometer operated at a high rate of shear*

TZS 1885:2016 *Paints and varnishes - Spraying properties of paints*

TZS 1890 ISO 15528_2013 *Paints, varnishes and raw materials for paints and varnishes – Sampling*

TZS 1893:2016/ISO 1514, *Paints and varnishes – Standard panels for testing*

TZS 1896-1:2016/ISO 9117-1 *Paints and varnishes - Drying tests - Part 1: Determination of through-dry state and through-dry time*.

TZS 1896-3:2016/ISO 9117-3, *Paints and varnishes — Drying test — Part 3: Surface drying test using Ballotini*

3. Terms and definitions

For the purpose of this standard the following term and definition shall apply:

3.1. standard conditions

an enclosed atmosphere of $25\text{ °C} \pm 2\text{ °C}$ temperature and $50\% \pm 5\%$ relative humidity

4. Requirements

4.1. General requirements

4.1.1. Composition

The aluminium pigment used in products covered by this standard shall consist of leafing grade paste that complies with the requirements of ISO 1247, type 2.

4.1.2. Conditions in the container

When the paint, in freshly opened containers (single or dual), is tested in accordance with TZS 525, the material shall not have caused the container to blow and any skin present shall be continuous and easily removable. There shall be no sign of livering or instability of the paint (or of the vehicle of the two-container paint). Any sediment present in the paint shall be capable of being easily and rapidly redispersed with a paddle to a smooth homogeneous state.

4.1.3. Storage stability

The paint, when stored in the original seal container at $25\text{ °C} \pm 2\text{ °C}$, for the period of 12 months from the date of manufacture, the paint in the freshly opened container shall have the following properties:

- a) it shall not have caused the container to blow;
- b) no skin shall be present;
- c) there shall be no livering or incompatibility;
- d) any sediment shall be easily redispersible to give a smooth homogeneous paint; and
- e) the leafing value shall be at least 80%.

4.1.4. Application properties

4.1.4.1. Brushing consistency

In the case of paints for application by brushing, the consistency determined in accordance with TZS 602 shall be between 30 s and 50 s.

4.1.4.2. Brushing properties

When tested in accordance with CDC 13 (5664) at a wet film thickness of $35\text{ }\mu\text{m}$ to $40\text{ }\mu\text{m}$, the paint shall show satisfactory brushing properties.

4.1.4.3. Spraying consistency

In the case of paints for application by spraying, the consistency measured in accordance with TZS 602 shall be between 20 s and 30 s, when the paint has been mixed as prescribed in the manufacturer's directions.

4.1.4.4. Spraying properties

When the paint has been mixed as prescribed in the manufacturer's directions and tested in accordance with TZS 1885 to a dry film thickness of $18\text{ }\mu\text{m}$ to $20\text{ }\mu\text{m}$, the paint shall spray satisfactorily and shall show no tendency to break, sag, or to produce an orange peel effect.

4.2. Specific requirements

4.2.1. Drying times

When tested in accordance with 8.2.4, the paint shall surface dry in 4 h and shall hard dry in 16 h.

4.2.2. Resistance to cold water

The paint film, prepared and tested in accordance with 6.4, shall show no wrinkling or blistering immediately after removal from the water, and 24 h after completion of the test the immersed and immersed portions shall be almost identical. The period of immersion shall be 24 h at room temperature.

4.2.3. Flexibility

The paint film, prepared, aged, and tested in accordance with 8.3, shall not crack or flake when bent through an angle of 180° over a 6 mm diameter mandrel.

4.2.4. Artificial weathering

When tested in accordance with ISO 11341 cycle A for 400 h, the paint shall not dull when compared with an unexposed panel.

5. Packaging and marking

5.1. Packaging

The paint shall be packaged in a suitable container that prevents it from deterioration during storage, transportation and normal handling.

5.2. Marking

5.2.1. The mark shall be either in English or Kiswahili or in combination. Any other language shall be optional.

5.2.2. The paint shall be packaged in containers that are legibly and indelibly marked with the following information:

- a) the name of the product and/or brand name;
- b) manufacturer's name, address and/or registered trade mark;
- c) date of manufacture;
- d) net content;
- e) batch/code number;
- f) country of origin;
- g) expiry date or best before date; and
- h) instructions for use and safety.

6. Sampling

Sampling shall be done in accordance with TZS 1890.

7. Quality of reagents

Analytical grade reagents and distilled water or deionized water of equivalent purity shall be used for the appropriate tests.

8. Methods of test

8.1. Test samples

With the exception of the tests performed in 4.1 and 4.2 the sample on which these tests are carried out shall be drawn as in 6.

8.2. Preparation of panels

8.2.1. Panels

Steel panel complying with the requirements of TZX 1893 of thickness approximately 0.4 mm in the case of the flexibility test, and of thickness 0.6 mm to 0.90 mm in all other cases and superficial size 70 mm x 150 mm, unless a different size is specified in the test method.

8.2.2. Degreasing of panels

Clean the test panels in accordance with TZX 1893. If the steel panels are not to be used immediately, store them in a desiccator until they are required.

8.2.3. Application of films

Apply the varnish with an applicator blade at a film thickness of 70 µm to 80 µm, unless otherwise specified.

8.2.4. Drying time

8.2.4.1. Surface-dry time. As described in TZX 1896-3.

8.2.4.2. Hard-dry time. As described in TZX 1896-1 with a plunger mass of 4.5 kg.

8.3. Resistance to cold water

Coat both sides of the panels (see 8.2.1) in accordance with 8.2.3 and age for 168 h in standard conditions. Seal the edges as described in SANS 5167. Carry out the test in accordance with SANS 5167, immersing the panels for the relevant time specified in 4.2.2.

8.4. Flexibility

8.4.1. Apparatus

As specified in TZX 552 with a mandrel of diameter 6 mm.

8.4.2. Preparation of panels

Apply the paint to the appropriate panels specified in 8.2.1 in accordance with 8.2.3. Air-dry the film for 168 h in standard conditions (see 3.1) and age for 24 h at 105 °C ± 2 °C. Condition the panels for half an hour under standard conditions after removal from the oven.

8.4.3. Procedure

Carry out the test in accordance with TZX 552 but when examining the film at the bend (for compliance with the requirements of 4.2.3) do not disregard cracks which do not penetrate through the film.