

DRAFT TANZANIA STANDARD

**Paints and varnishes — Determination of brush and roller
application properties**

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 6259:2003, *Paints and varnishes — Determination of brush and roller application properties*.

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 a method of assessing the brush and roller application properties of paints and varnishes and their flow characteristics when they are applied over relatively large areas. It can also be used to assess other properties such as recoating, lapping and retraction from sharp edges. Weld seams, mouldings or rivets may be attached to the test panel to observe particular characteristics.

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.

TZS 4, *Rounding off numerical values*

TZS 524, *Corrugated fibreboard specification*

TZS 1094, *Painters' brushes – Specification*

TZS 1193, *Gypsum plasterboard – Specification*

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

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

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

3. Terms and definitions

For the purposes of this standard, the following terms and definitions apply:

3.1. dry-brush

brush with all paint discharged, and unable to transfer more paint onto the surface being painted

3.2. dry-roller

roller with all paint discharged, and unable to transfer more paint onto the surface being painted

3.3. lay-off

final step in the application whereby the paint film is smoothed out by stroking lightly with a dry-brush or dry-roller in one direction

4. Preparation of panels

4.1. General

Test panels shall comply with the requirements of TZS 1893, unless otherwise specified. Sealing or priming is considered to form part of the coating system and shall be as specified for the product being tested.

4.2. Steel panels

4.2.1. Material

Steel sheet, of size at least 500 mm x 500 mm x 1.25 mm, with edges cut smoothly and deburred. Attachments such as weld seams, mouldings or rivets may be added as agreed upon between the parties concerned.

4.2.2. Initial preparation for painting

Degrease the panels by swabbing with a rag soaked in mineral turpentine or xylene until the rag shows no contamination. Carry out a final swabbing operation with a clean piece of linen or cotton cloth soaked in clean mineral turpentine, xylene, or light petroleum spirit (boiling range 60 °C to 80 °C). Lightly dry the panel with a clean rag, and paint as soon as possible. Take care that the prepared surfaces are not touched by hand or otherwise contaminated at any time between degreasing and painting.

Other methods of preparation such as sanding, acid cleaning, phosphating or grit blasting may be carried out by agreement between the parties concerned.

4.2.3. Recovery of plain steel panels

If recovery of panels is required, use a suitable paint remover to remove the entire paint coating and prepare the panel in accordance with 4.2.2.

4.3. Paper-faced plasterboard

4.3.1. Material

Paper-faced plasterboard, that complies with the requirements of TZS 1193, and is of size at least 1 m x 1 m x 9.5 mm.

4.3.2. Initial preparation for painting

No special preparation is required.

4.4. Hardboard

4.4.1. Material

Hardboard that complies with the requirements of TZS 524 is of medium density and of size at least 1 m x 1 m x 6.4 mm. The smooth side is used as the test surface.

4.4.2. Initial preparation for painting

Clean the surface by swabbing with a cloth soaked in xylene. Follow by wiping the surface lightly with a clean, dry cloth.

NOTE: The above cleaning operation is carried out to ensure that the surface for painting is essentially free from mould-release agents. It is recommended that a small area of the surface be painted and examined before the application test is carried out. If any "fish-eyes" are observed, the cleaning operation should be repeated.

4.5. Fibre-cement panels

4.5.1. Material

Double-pressed fibre-cement of size at least 1 m x 1 m x 6 mm.

4.5.2. Initial preparation for painting

Remove surface dust by rinsing the panels with running water. Leave to dry.

4.6. Wood panels

4.6.1. Material

Faced pine, of size at least 500 mm x 500 mm x 5 mm.

4.6.2. Initial preparation for painting

Rub down the face of the panel, using 220 grit silicon-carbide waterproof paper and working in the direction of the grain until a smooth surface is obtained.

4.7. Cardboard panels

4.7.1. Material

Cardboard, single-wall C-flute, with a corrugated support in the centre that forms a board combination of 230/160/230 g/m² with lines and fluting, and of size 1 m x 1 m.

4.7.2. Initial preparation for painting

No special preparation is required.

5. Procedure for painting

5.1. Standard paint

Whenever possible, a standard reference paint of a similar type to the paint under test shall be selected by agreement between the parties concerned.

5.2. General

5.2.1. Sampling

Take a representative sample of the paint to be tested, as described in TZS 1890, and examine and prepare the test sample as described in TZS 525.

5.2.2. Single paints

When only one paint is to be tested, coat the test panel beforehand with those parts of the paint system that are normally applied before the paint under test, allowing for the specified recoating drying times and sanding, where relevant.

5.2.3. Paint systems

Apply each coat of the paint system in accordance with 5.3.1 or 5.3.2, as applicable, allowing for the specified surface preparation and recoating times. Evaluate each coat on its own, during application and before any subsequent coat is applied, and also evaluate the system as a whole.

For comparison purposes, individual coats may be masked before subsequent coats are applied.

5.3. Application method

5.3.1. Brush application

5.3.1.1. Brushes

Select brushes of width 50 mm, of nylon, and that comply with the requirements of TZS 1094.

5.3.1.2. Procedure for brush application

Perform the brush application in the three steps given in 5.3.1.2.1 to 5.3.1.2.3.

5.3.1.2.1. Application

Fill the brush with paint and apply the paint to the centre of the area to be covered. Carry out parallel up-and-down brush strokes (see figure 1), working from the centre outwards. Work most of the paint out of the brush and recharge the brush as necessary. If lapping is to be evaluated, initially cover only half of the panel.

5.3.1.2.2. First coat lay-off

Using the dry-brush technique, distribute the paint evenly, carrying out the brush strokes in the direction shown in figure 2.

5.3.1.2.3. Second coat lay-off

Using the dry-brush technique, distribute the paint in a uniform continuous film, carrying out the brush strokes in the direction shown in figure 3.

5.3.2. Roller application

5.3.2.1. Rollers

Select rollers of woolskin, of size 4 inch.

5.3.2.2. Procedure for roller application

5.3.2.2.1. General

Perform the roller application in the three steps given in 5.3.2.2.2 to 5.3.2.2.4.

5.3.2.2.2. Application

Fill the roller with paint and apply it to the area to be covered. Carry out all roller strokes in the same direction (see figure 1), working from the top to the bottom and from left to the right. Work most of the paint out of the roller and recharge the roller as necessary. If lapping is to be evaluated, initially cover only half of the panel.

5.3.2.2.3. First coat lay-off

Using the dry-roller technique, distribute the paint evenly, carrying out the roller strokes in the direction shown in figure 2.

5.3.2.2.4. Second coat lay-off

Using the dry-roller technique, distribute the paint into a uniform continuous film, carrying out the roller strokes in the direction shown in figure 3.

5.3.3. Lapping

For the evaluation of lapping in both the brush and the roller applications, allow the paint applied to one-half of the panel to dry for the specified time. Then coat the other half of the panel, using the same procedure as described in 5.3.1.2 or 5.3.2.2 and extending the brush/roller strokes (into the paint that covers the first half, noting any tendency of the brush/roller to drag, or any brush/roller marks at the join after the paint has dried.

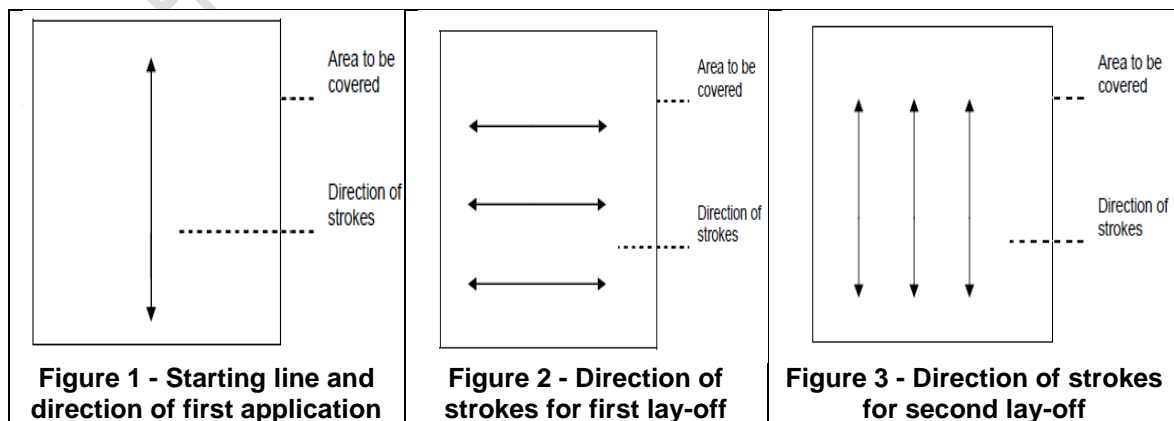
6. Expression of results

Report the results as the performance of the paint under test, compared with standard reference paint. The properties to be assessed shall be as agreed upon between the parties concerned. Properties that can be assessed are given in annex A.

7. Test report

The test report should include the following information:

- a reference to this standard;
- the type and identification of the paint under test;
- the type and size of brush or roller used;
- a reference to relevant paint standard used;
- the results of the test; and
- the date of the test.



Annex A

(informative)

Guidelines for the assessment of paints

A.1 A list of defects with respect to which the paint may be assessed by means of this standard is given below:

- a) blisters, size;
- b) blisters, frequency;
- c) brush drag;
- d) brush marks;
- e) cissing, "fish eyes", size;
- f) cissing, "fish eyes", frequency;
- g) cratering, size;
- h) cratering, frequency;
- i) floating;
- j) flow;
- k) flowing away from edges;
- l) lap-joint marks;
- m) lifting;
- n) pinholes, frequency;
- o) roller marks (ribbing);
- p) sagging;
- q) spattering; and
- r) wrinkling.

NOTE Definitions of some of these terms can be found in ISO 4618.

A.2 A numerical rating system from 0 to 5 can be used, where 0 represents the best result that could be expected or the absence of the specified defect, and 5 represents the poorest result possible or a predominance of the specified defect over the entire surface of the applied paint.

A.3 Other tests with more specifically defined ratings may be used, as agreed upon between the parties concerned.

Bibliography

ISO 4618, *Paints and varnishes – Terms and definitions.*

Draft for Stakeholders' Comment