

ICS 87.040

DMS 282:2018

Third edition

DRAFT PROPOSAL

Decorative high gloss enamel paints – Specification

NOTE: This is a draft proposal. It shall neither be used nor regarded as a Malawi Standard

Decorative high gloss enamel paints – Specification

Obtainable from the
Malawi Bureau of Standards
Moirs Road
P O Box 946
BLANTYRE

Tel: +265 1 870 488
Fax: +265 1 870 756
E-mail: mbs@mbsmw.org
Website: www.mbsmw.org

Price based on 13 pages

© Copyright reserved

TABLE OF CONTENTS

Content	Page
Foreword.....	i
Technical committee.....	i
Notice.....	i
Scope.....	1
Normative references	1
Definitions	2
Requirements	2
Packing and marking	6
Sampling and compliance.....	6
Methods of test	7
Annex A (normative): Notes to purchasers.....	11
Annex B (informative): Components of colour difference.....	12
Annex C (informative): Quality verification of undercoats for paints	13

FOREWORD

This draft standard was prepared by the Technical Committee MBS/TC 12, *Paints and varnishes*. During the preparation of this standard reference was made to the following South African National Standard:

SANS 630: 2009 Edition 3.2, *Decorative high gloss enamel paints*.

Acknowledgement is hereby made for use of the standard.

Annex A forms an integral part of this standard. Annexes B and C are for information only. This edition of the standard cancels and replaces the second edition (MS 282:2013). Technical modification to this document has been done by changing the requirements for hiding power (4.6) and deleting the table containing wet film thicknesses (4.6).

TECHNICAL COMMITTEE

This draft standard was prepared by the MBS/TC 12, Technical Committee on *Paints and varnishes*, and the following companies, organizations and institutions were represented.

- Malawi Polytechnic
- Blantyre City Council
- Chancellor college
- Monolux paints Limited
- Rainbow Paints Limited
- Kansai Plascon Limited
- National Construction Industry Council (NCIC)
- Malawi Building and Civil-Engineering Allied Traders Association (MABCATA)
- Malawi Bureau of Standards
- Malawi Housing Corporation
- Royale Chemicals Limited
- Valmore Paints Limited

NOTICE

This standard shall be reviewed every five years or earlier, whenever necessary, in order to keep abreast of progress. Comments are welcome and shall be considered when the standard is being reviewed.

DRAFT PROPOSAL

Decorative high gloss enamel paint – Specification

1 SCOPE

This draft standard specifies the requirements and methods of sampling and test for two grades of air-drying gloss enamel paints for use on suitably primed and uncoated steel, wood, masonry, hard board, compressed fibre board and similar materials used in the construction and finishing of buildings.

2 NORMATIVE REFERENCES

The following standards contain provisions, which, through reference in this text, constitute provisions of this draft standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this draft standard are encouraged to take steps to ensure the use of the most recent editions of the standards listed below. Information on currently valid national and international standards can be obtained from the Malawi Bureau of Standards.

MS 274, *Paints and varnishes – Standard panels for testing*;

MS 275, *Paints and varnishes – Comparison of contrast ratio (hiding power) of paints of the same type and colour*;

MS 276, *Paints and varnishes – Measurement of specular gloss of non-metallic paint films at 20°, 60° and 85°*;

MS 283, *Standard test method for low concentration of lead, cadmium, and cobalt in paint by Atomic Absorption Spectroscopy*;

MS 722, *Labelling, presentation and advertising of prepacked goods for the ultimate consumer*;

MS 891, *Paints and varnishes – Visual comparison of the colour of paints*;

MS 892, *Paints and varnishes – Examination and preparation of samples for testing*;

MS 1007, *Paints and varnishes – Determination of brush and roller properties*;

MS 1009, *Paints, varnishes and printing inks – Determination of fineness of grind*;

MS 1012-4, *Paints and varnishes – Evaluation of degradation of paint coatings – Designation of intensity, quantity and size of common type of defects, Part 4: Designation of degree of cracking*.

MS 1012-5, *Paints and varnishes – Evaluation of degradation of paint coatings – Designation of intensity, quantity and size of common type of defects, Part 5: Designation of degree of flaking*;

MS 1012-6, *Paints and varnishes – Evaluation of degradation of paint coatings – Designation of intensity, quantity and size of common type of defects, Part 6: rating of degree of chalking by tape method*;

MS 1014-1, *Paints and varnishes – Colorimetry, Part 1: Principles*;

MS 1014-2, *Paints and varnishes – Colorimetry, Part 2: Colour measurement*;

MS 1014-3, *Paints and varnishes – Colorimetry, Part 3: Calculation of colour differences*;

MS 1016-1, *Paints and varnishes – Drying tests, Part 1: Determination of through-dry state and through-dry time*;

MS 1016-3, *Paints and varnishes – Drying tests, Part 3: Surface-drying test using ballotini*;

MS 1017, *Method for calculation of small colour differences*;

MS 1018, *Paints and varnishes – Determination of viscosity by means of an efflux cup*;

MS 1021, *Paints and varnishes – Bend test (cylindrical mandrel)*;

MS 1022, *Paints and varnishes – Exposure of coatings to artificial weathering – Exposure to fluorescent UV and water*;

MS 1023, *Paints and varnishes – Determination of resistance to cold water*;

MS 1026, *Paints and varnishes – Artificial weathering and exposure to artificial radiation – Exposure to filtered xenon-arc radiation*;

MS 1027, *Paints and varnishes – Determination of viscosity by means of a Stormer viscometer*;

MS 1028, *Paints and varnishes – Wet hiding power (brush-out method)*;

MS 1040, *Determination of water – Karl Fischer method (general method)*;

MS 1045, *Paints and varnishes – Daylight 45°, 0° luminous directional reflectance of surface coatings and pigments*;

MS-ISO 9001, *Quality management systems – Requirements*; and

BS 6923, *Method for calculation of small colour differences*.

3 TERMS AND DEFINITIONS

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

3.1

defective

test sample or a container of the enamel that fails in one or more respects to comply with the relevant requirements of this standard

3.2

lot

the quantity of enamel of the same grade and colour, in containers bearing the same batch identification, produced by one manufacturer, and submitted at any time for inspection and testing

3.3

reflectivity

reflectance of a paint film of such thickness that a further increase in thickness gives no further change in reflectance

3.4

standard atmosphere

an enclosed atmosphere of 23 ± 2 °C temperature and (50 ± 5) % relative humidity

4 REQUIREMENTS

4.1 Grades

An enamel shall be one of the following grades, as required (see annex A):

a) **Grade 1**: high hiding; and

b) **Grade 2**: regular hiding.

4.2 Condition in the container

When the paint from a newly opened container is examined in accordance with MS 892, it shall be free from lumps, loose skins, extraneous matter and colour separation. If any settlement is observed, the paint shall be capable of being readily redispersed to a smooth homogenous state by using a palette knife.

4.3 Storage stability

If stored in accordance with 7.3 and then examined in accordance with MS 892, the paint shall show no livering and no hard or dry settlement. The paint shall be capable of easy and rapid redispersion to a smooth homogeneous state. The paint shall not contain any skin.

4.4 Application properties

4.4.1 Brush application

When applied to a steel panel, of size at least 300 mm x 300 mm, and tested in accordance with MS 1007, the unthinned paint shall brush without excessive drag. The paint shall join without lapmarks after drying for 5 min.

The dry paint film shall be free from flotation, sag or ciss marks.

4.4.2 Roller application

When the paint is applied with a mohair roller, that complies with the requirements of MS 1007, to a steel panel, of size at least 500 mm x 500 mm, and is tested in accordance with MS 1007, the unthinned paint shall roll without perceptible drag. The paint shall flow well, shall spread without foaming and ribbing, and shall join without lapmarks after drying for 5 min. The dry film shall have an even, level surface free from flotation or pinholes and from sag or ciss marks.

The paint film shall have an even, level surface, free from flotation or pinholes, sag or ciss marks or any other film defect.

4.4.3 Reducibility with mineral turpentine

When tested in accordance with 7.4.1, the paint shall mix readily with the mineral turpentine to a smooth homogenous state and shall show no incompatibility after the standing period or film defects on panel with flowed-out paint.

4.4.4 Spray application

A paint that is recommended for spraying shall, when tested in accordance with 7.4.2, spray without spattering and shall show no flotation and no tendency to sag, run or creep. The paint shall show no tendency to produce an "orange peel" effect and the second coat shall join well with the first coat after drying for 5 min.

The dry paint film shall be an even, level film free from flotation or pinholes, sag or ciss marks, orange peel or any other film defect.

4.4.5 Recoating properties

When the paint is overcoated in accordance with 7.5, there shall be no ciss marks or lifting of the first coat.

The hard dry time of the second coat shall not exceed 24 h and the 20° specular gloss of Grade 1 enamels shall be at least 75 and the gloss of Grade 2 enamels shall be at least 70.

4.5 Drying time

4.5.1 Surface-dry time

When the paint is applied (see 7.2) with an adjustable film applicator to a glass panel (see 7.1.3) and is then tested in accordance with MS 1016-3, the surface-dry time shall not exceed 4 h.

4.5.2 Hard-dry time

When the undercoat is applied (see 7.1.2) with an adjustable applicator blade to a glass panel (see 7.1.1.3) and is then tested in accordance with MS 1016-1, using a plunger mass of 6.75 kg, the hard-dry time shall not exceed 16 h.

4.6 Hiding power

When tested in accordance with MS 1028, grade 1 white paint shall have a wet hiding power of 10.7 m²/ℓ min, and grade 2 white paint shall have a wet hiding power of 8.2 m²/ℓ min. The wet hiding power of paint of other colours shall be as agreed between the purchaser and supplier.

4.7 Colour

4.7.1 When the colour of the paint is compared visually in accordance with MS 891, to a standard agreed upon by the interested parties (see annex A), the colour difference rating shall not exceed 1 unit.

4.7.2 When the colour of the paint is compared instrumentally in accordance with 7.6.2, to a standard agreed upon by interested parties (see annex A), the total colour difference DE_{CMC} (see note), determined in accordance with MS 1017, shall be small enough that the a/b plot falls within the ellipsoid for the standard that is defined by the semi-axis S_L , S_C and S_H and has unit volume tolerance.

NOTE: – The notation DE_{CMC} as used here and in commercially available software corresponds to the DE defined in MS 1017, with $l = c = 1$ as chosen values.

4.8 Reflectance of white enamel

The reflectance R_w of a white enamel determined in accordance with 7.7, shall be at least 85.

4.9 20° Specular gloss

4.9.1 Initial gloss

When the enamel is tested in accordance with 7.8, the 20° specular gloss shall be at least 80, after 24 h drying.

4.9.2 Gloss retention

When determined in accordance with 7.8, the 20° specular gloss of a grade 1 paint shall be at least 75 and the 20° specular gloss of a grade 2 paint shall be at least 70, after 7 days aging.

4.10 Flexibility

When the paint is tested in accordance with 7.9, the paint film shall not crack or flake or show loss of adhesion.

4.11 Resistance to cold water

When the paint is tested in accordance with 7.10, the paint film shall show no blistering or wrinkling immediately after removal from the water. After a 24 h recovery the paint shall show no perceptible film defects and the 20° specular gloss shall be at least 60.

4.12 Resistance to colour change

After 168 h of continuous artificial weathering in accordance with 7.11, the paint film shall not show a colour change, equivalent to a lightness difference (ΔL^*) of more than two units for all colours, except yellow and orange, which may show a colour change equivalent to a lightness difference of not more than 4 units.

4.13 Resistance to artificial weathering

When tested for 400 h in accordance with 5.13, the paint shall show no chalking, checking or cracking. The 60° specular gloss shall not be lower than 50.

4.13.1 When the colour of the paint is compared visually with the unexposed panel in accordance with MS 891, the colour difference rating shall not be more than the units specified in Table 2.

Table 2 — Colour difference ratings permissible after artificial weathering

1	2	3
colour	Colour rating	
	Grade 1	Grade 2
All colours except yellow, orange, red	1	2
Yellow, orange, red	2	3

4.13.2 When the colour of the paint is compared instrumentally in accordance with 7.6.2, to the unexposed panel, the total colour difference DE_{CMC} , determined in accordance with MS 1017, shall be small enough that the a/b plot falls within the ellipsoid for the standard that is defined by the semi-axis S_L , S_C and S_H and has unit volume tolerance of 2 for all colours except yellow, orange and red, and has unit volume tolerance of 3 for yellow, orange and red.

4.14 Yellowing of white paint

4.14.1 Yellowing upon exposure to artificial weathering

When tested in accordance with 7.13.1, white paint shall show no difference in yellow hue after continuous exposure to artificial weathering for a period of 7 days.

4.14.2 Yellowing upon exposure in the dark

When tested in accordance with 7.14.2, for the periods specified in table 3, white enamels shall show no difference in yellow hue.

Table 3 — Exposure periods to be used, for determination of yellowing

1	2	3
Grade	Exposure to total darkness (days)	Recovery period (days)
1	14	7
2	7	7

4.15 Consistency

When tested in accordance with MS 1027, the viscosity of the paint at 25 °C shall be 70 – 80 KU. The paint shall be in such a condition that stirring readily produces a smooth uniform mixture of good brushing consistency.

4.16 Fineness of grind

When determined in accordance with MS 1009, the fineness of grind reading of the paint shall not exceed 5 µm.

4.17 Water content

When tested in accordance with MS 1040, the paint shall contain no more than 0.5 % of water.

4.18 Lead content

When tested in accordance with MS 283, enamel shall not contain lead.

5 PACKING AND MARKING

5.1 Packing

Enamel shall be packed in clean, dry containers. The containers shall be strong enough to withstand normal usage and shall be adequately sealed to prevent leakage and contamination of the contents during normal transportation and handling.

5.2 Marking

Labeling and marking shall comply with MS 722 with at least the following information shall clearly, legibly and indelibly be marked on the side of each container, or a label securely fixed to each container.

- a) The manufacturer's name, or the brand name of the product, or both;
- b) The word "high gloss enamel";
- c) The words "grade 1, high hiding" or "grade 2, regular hiding", as applicable;
- d) The colour;
- e) The batch identification;
- f) Date of manufacture;
- g) The directions for use and specify minimum waiting time before use;
- h) The shelf life; and
- i) VOC content as declared by manufacturer.

6 SAMPLING AND COMPLIANCE

6.1 Sampling

The following sampling procedure shall be applied in determining whether a lot complies with the relevant requirements of this standard. The samples so drawn shall be deemed to represent the lot.

NOTE- A sample volume of at least 2ℓ will be required for testing for compliance with this standard

6.1.1 Samples for storage stability test

After checking for compliance with clause 5, draw at random from the lot two containers each of capacity at least 1ℓ or if the containers in the lot have a capacity less than 1ℓ, two containers of the greatest capacity.

6.1.2 Sample for inspection and remaining tests

From the lot draw at random one container or if the containers in the lot have capacities less than 1ℓ, enough containers to provide a composite sample of volume at least 1ℓ. After assessing the condition of the contents of the container(s) for compliance with the requirements for condition in the container (**4.2**), remove any surface skin that may be present, thoroughly stir or mix the contents of each container until a completely homogeneous product is obtained and take from the container(s) a test sample of volume at least 1ℓ. Use this sample for the remainder of the tests.

6.2 Compliance

The lot shall be deemed to comply with the requirements of this standard if, upon inspection of the containers in the lot and upon testing the samples drawn in accordance with **6.1**, no defective is found.

NOTE – Refer to annex B regarding quality verification.

7 METHODS OF TEST

7.1 Panels

7.1.1 Steel panels, of size 70 mm x 150 mm and of thickness 0.60 mm to 0.90 mm, and that have been solvent-cleaned in accordance with MS 274.

7.1.2 Steel panels for flexibility test, of size 70 mm x 150 mm and of thickness 0.50 mm that have been solvent-cleaned in accordance with MS 274.

7.1.3 Glass panels, of size 70 mm x 150 mm (unless otherwise specified), and that have been solvent-cleaned in accordance with MS 274.

7.2 Application thickness

Apply the enamel at a wet film thickness of 60 µm to 65 µm per coat, unless otherwise specified.

7.3 Storage stability

Store a full closed 500 ml container, undisturbed in an upright position, at a temperature of 23 ± 2 °C, and examine after a period of 30 days and again after a period of 12 months.

Use a palette knife to examine the paint for compliance with **4.3** after the relevant storage period.

7.4 Application properties

7.4.1 Reducibility with mineral turpentine

7.4.1.1 As a thinner, use mineral turpentine that contains between 12 % and 18 % (by volume) of aromatic solvent and that has a boiling range of 130 °C to 200 °C.

7.4.1.2 Dilute four volumes of enamel (at a temperature in the range 21 to 32 °C) with one volume of mineral turpentine, at the same temperature. Observe whether the paint mixes readily and easily with the thinner (see **4.4.3**). Almost fill a glass container with the diluted paint, stopper it well. Leave the reduced paint to stand at 23 ± 2 °C for 4 h.

Examine the condition of the paint in the container. Flow the paint out on a glass panel, and inspect for defects in the film.

7.4.2 Spray application

Thin the paint in accordance with the manufacturer's printed instructions. If no thinning instructions are given, thin the paint to spraying viscosity (15 s to 30 s, when determined with a Ford No. 4 viscosity cup, in accordance with MS 1018). Apply the paint to one half of a vertically placed glass panel of size 100 mm x 300 mm, using a conventional spray gun with an external mix nozzle and air cap, and using an atomizing pressure of 350 kPa. Maintain a nozzle tip-to-panel distance of approximately 250 mm and a fan setting of an angle approximately 45°. Regulate the traverse speed of the spray gun to obtain a wet film thickness of 100 ± 10 µm after two complete passes.

Spray the second half of the panel 5 min after spraying the first half.

During spraying, examine the spray pattern for freedom from spattering. Leave panel to dry in a vertical position. Examine the wet film and the dry film for compliance with **4.4.4**.

7.5 Recoating properties

Brush apply two coats of paint (**7.2**) to a glass panel (**7.1.3**), allowing 16 h between coats. Examine the panel immediately and after drying, for film defects (see **4.4.5**).

Determine the hard dry time of the second coat, using MS 1016-1 (see **4.4.5**).

Determine the gloss in accordance with MS 276, 7 days after application of the second coat (see 4.4.5).

7.6 Colour

7.6.1 Panel preparation

Draw down a single paint film, using an applicator blade with a gap clearance of 200 µm onto a glass panel (7.1.3) and allow to dry for 24 h.

7.6.2 Instrumental comparison

Determine the colour coordinate values CIE L^* , a^* and b^* of the test paint and of the standard colour in accordance with MS 1014-1 and MS 1014-2.

Plot the ellipsoid of the standard colour describing a ΔE_{CMC} of unit volume tolerance in accordance with MS 1017. Plot the values of a and b in the same plane (see 4.7).

NOTE- When the semi-axis lengths in the formula for ΔE (see BS MS 1017) equals the calculated values for IS_L , cS_C and S_H , the resulting ellipsoid describes a unit volume tolerance of 1.

7.7 Reflectance

Apply (see 7.2) two or more coats of paint (to obtain complete obliteration) with an adjustable film applicator (see 7.2) to a glass panel (7.1.3), allowing 24 h between coats. Age for 48 h after application of the final coat. Determine the reflectance R_w in accordance with MS 275 (see 4.8).

7.8 20° specular gloss

Apply one coat of paint (see 7.2) with an adjustable film applicator to a glass panel (7.1.3) and determine the gloss in accordance with MS 276, 24 h after application and again after 7 days aging (see 4.9).

7.9 Flexibility

7.9.1 Apparatus

7.9.1.1 **Cylindrical mandrel**, as specified in MS 1021, with mandrels of diameter 4 mm.

7.9.1.2 **Magnifying means**, capable of magnifying by 10 times.

7.9.2 Procedure

Apply one coat of paint (see 7.2) with an adjustable film applicator to a steel panel (see 7.1.2). Allow the panel to dry for 48 h in a standard atmosphere and then age artificially for 24 h at 70 ± 2 °C. Condition the panel at 23 ± 2 °C before testing in accordance with MS 1021.

Examine the paint film at the bend, using a magnification of 10 times (see 4.10).

7.10 Resistance to cold water

Apply one coat of paint (7.2) with an adjustable film applicator to a steel panel (7.1.1). Dry the panel horizontally and age the panels for 7 days in a standard atmosphere, before testing. Seal the back and the edges of the panels as described in MS 1023.

Carry out the test as described in MS 1023, immersing the panel for 16 h. Inspect the panel immediately after removal from the water and again 24 h after removal, for compliance with 4.11.

7.11 Resistance to colour change

7.11.1 Panel preparation

Brush apply two coats or more (to obtain complete obliteration) enamel (see 7.2) to three steel panels (7.1.1), allowing 24 h aging between coats. Age for 7 days in a standard atmosphere before exposing.

7.11.2 Procedure

Determine the resistance to artificial weathering of two of the panels in accordance with MS 1022, using lamps of type 1 (commonly known as UVB 313 lamps) and method A (exposure including condensation). Maintain the exposure for 168 h and inspect after this period.

Determine the lightness difference, ΔL^* , between the exposed and the unexposed panels, in accordance with all three parts of MS 1014 (see 4.12).

If suitable equipment to determine ΔL^* is not available, use the method as given in annex C.

7.12 Resistance to artificial weathering

7.12.1 Panel preparation

Brush apply two coats or more (to obtain complete obliteration) paint (see 7.2) to two steel panels (see 7.1.1). Allow 24 h aging between coats. Age the panels in a standard atmosphere for 7 days.

7.12.2 Procedure

Keep one test panel unexposed, in a standard atmosphere for the duration of the exposure.

Determine the resistance to artificial weathering in accordance with MS 1026, using method 1 (relative spectral distribution similar to solar ultraviolet and visible radiation) and cycle A (continuous run with a wetting time of 18 min and drying period of 102 min).

Maintain the cyclic exposure for 400 h and inspect periodically.

Remove the test specimen from the artificial weathering apparatus and condition for 2 h in a standard atmosphere.

7.12.3 Assessment

7.12.3.1 Cracking, flaking and chalking

Examine the panels for any defects and report their presence, if any, in accordance with the ratings as described in MS 1012-4, MS 1012-5 and MS 1012-6 respectively (see 4.13).

7.12.3.2 Gloss

Determine the 60° gloss in accordance with MS 276 (see 4.13).

7.12.3.3 Colour

The paint film is compared with the similarly prepared unexposed panel, using the colour ratings given in MS 891 to assess the colour difference (see 4.13).

7.13 Yellowing of white paint

7.13.1 Yellowing upon exposure to artificial weathering

Prepare and expose a panel as described in 7.11.

At the end of the exposure period, compare the panel with a 24 h old panel prepared from the same batch of paint in a similar manner. Describe any colour differences in accordance with MS 891 (see 4.14.1).

7.13.2 Yellowing upon exposure in the dark

Brush apply two or more coats of paint (to obtain complete obliteration) (see 7.2) to a steel panel (see 7.1.1). Allow 24 h between coats. Allow the panel to age for 24 h in a standard atmosphere after application of the final coat.

Store the panel for the specified period in a cupboard that excludes all light, at a temperature of 23 ± 2 °C. Do not open the cupboard during the test. After dark storage, allow the panel to recover for a period of 7 days, in an area of diffused daylight.

At the end of the exposure, compare the exposed panel with an unexposed 24 h old panel prepared in a similar manner of the same batch of paint and describe any colour differences, in accordance with MS 891 (see **4.14.2**).

ANNEX A
(Normative)

NOTES TO PURCHASERS

The following requirement shall be specified in tender invitations and in each order or contract:

- a) The grade of enamel (see **4.1**); and
- b) The colour (see **4.7**).

NOTE 1 – Colour differences may be specified in one or more of the following formats:

- a) As an agreement between parties prior to delivery;
- b) In categories outlined in MS 891; or
- c) As measurable colour differences in accordance with MS 1014-1, MS 1014-2 and MS 1014-3.

NOTE 2 – Apart from the colour, it is recommended that tender invitations and orders also include reference to acceptable colour differences.

ANNEX B
(Informative)

QUALITY VERIFICATION OF HIGH GLOSS ENAMEL PAINTS

When the purchaser requires ongoing quality verification of high gloss enamel paints produced to this standard, it is suggested that, instead of concentrating solely on evaluation of the final product, he also direct his attention to the manufacturer's quality system. In this connection, it should be noted that MS-ISO 9001 covers the provision of an integrated quality system.

ANNEX C
(Informative)

ALTERNATIVE METHOD FOR DETERMINATION OF COLOUR CHANGE

C.1 PROCEDURE

Prepare the panels as described in 7.11.1.

Measure the reflectance of the panels in accordance with MS 1045, before exposure. Expose the panels as described in 7.11.2.

Measure the reflectance again after exposure.

C.2 CALCULATION

Calculate the lightness difference (ΔL^*) from the following expression:

$$\Delta L^* = K(Y_1^{1/2} - Y_2^{1/2})$$

Where

ΔL^* is the lightness difference;

K is 10;

Y_1 is the reflectance of the paint before exposure, expressed in percentage; and

Y_2 is the reflectance of the paint after exposure, expressed in percentage.

THE MALAWI BUREAU OF STANDARDS

The Malawi Bureau of Standards (MBS) is the standardizing body in Malawi under the aegis of the Ministry of Industry and Trade. Set up in 1972 by the Malawi Bureau of Standards Act (Cap: 51:02), the MBS is a parastatal body whose activities aim at formulating and promoting the general adoption of standards relating to structures, commodities, materials, practices, operations and from time to time revise, alter and amend the same to incorporate advanced technology.

CERTIFICATION MARK SCHEME

To bring the advantages of standardization within the reach of the common consumer, the MBS operates a Certification Mark Scheme. Under this scheme, manufacturers who produce goods that conform to national standards are granted permits to use the MBS' "Mark of Quality" depicted below on their products. This Mark gives confidence to the consumer of the commodity's reliability.



