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SPECIFICATION FOR

KAOLIN FOR THE PAINT INDUSTRY

SRI LANKA STANDARDS INSTITUTION

Gr.5

SRI LANKA STANDARD
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FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1987-01-07, after the draft, finalized by the Drafting Committee on Kaolin, had been approved by the Chemicals Divisional Committee.

In Sri Lanka, kaolin deposits are at present found at Boralasgamuwa and Meetiyagoda. Kaolin obtained from these deposits is refined at the Ceylon Ceramics Corporation and supplied to various industries such as porcelain, paper paint, rubber etc., according to the specifications of each industry. Colour is the main characteristic used in selecting the material to be supplied to the paint industry.

In this specification, requirement for oil absorption value has not been specified. However, the normal range of oil absorption of kaolin is 30 g/100 g - 60 g/100 g, when tested by the method prescribed in Appendix B. In this specification, requirement for colour, calls for agreement between the purchaser and the supplier.

All standard values in this specification are given in SI units.

For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with CS 102. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this specification.

In the preparation of this specification the assistance obtained from the publications of the International Organization for Standardization and the American Society for Testing and Materials is gratefully acknowledged.

1 SCOPE

This specification prescribes requirements, methods of sampling and tests for kaolin used as an extender in the paint industry.

2 REFERENCES

ISO 3262 Extenders for paints

CS 102 Presentation of numerical values

SLS 428 Random sampling methods

SLS 650 Kaolin for the rubber industry

3 DEFINITION

For the purpose of this specification the following definition shall apply:

extender: An inorganic material in powder form which has a low refractive index and consequently little obliterating power, but is used as a constituent of paints to adjust the properties of the paint, notably its working and film forming properties and in some cases to avoid settlement on storage.

4 GRADES

Kaolin covered under this specification shall be of the following grades:

Grade 1;

Grade 2; and

Grade 3.

5 REQUIREMENTS

5.1 General requirements

5.1.1 The material shall be a natural mineral powder consisting essentially of hydrated aluminium silicate. It shall be free from extraneous impurities and grit.

5.1.2 The material shall be white or off white in colour.

5.1.3 The material shall be in the form of a dry powder or in such condition that it may readily be reduced thereto by crushing under a palette knife without any grinding action being necessary. The material shall form a smooth cream in water upon agitation.

5.2 Other requirements

The material shall also comply with the requirements given in Table 1 when tested in accordance with the relevant methods prescribed in Column 6 of the table.

TABLE 1 - Requirements for kaolin

Sl. No. (1)	Characteristic (2)	Requirement			Method of test (6)
		Grade 1 (3)	Grade 2 (4)	Grade 3 (5)	
i	Particles less than 2 µm, per cent by mass, min.	70	35	15	ISO 3262:1975 Clause 9
ii	Particles less than 10 µm, per cent by mass, min.	99	80	70	ISO 3262:1975 Clause 9
iii	Residue on 45 µm sieve, per cent by mass, max.	0.05	0.1	0.5	ISO 3262:1975 Clause 8
iv	Relative density at 27 °C/27 °C	2.5 to 2.7	2.5 to 2.7	2.5 to 2.7	SLS 650:1984 Appendix E
v	Matter volatile at 105 °C, per cent by mass, max.	2.0	2.0	2.0	ISO 3262:1975 Clause 10
vi	Loss on ignition at 1000 °C, on the basis of dried sample, per cent by mass	10 to 14	10 to 14	10 to 14	ISO 3262:1975 Clause 11
vii	pH at 27 ± 2 °C	4.5 to 9.5	4.5 to 9.5	4.5 to 9.5	ISO 3262:1975 Clause 13
viii	Matter soluble in water, per cent by mass, max.	0.5	0.5	0.5	SLS 650:1984 Appendix F
ix	Iron, as Fe_2O_3, per cent by mass, max.	0.35	0.75	1.5	SLS 650:1984 Appendix B
x	Colour	Close match to agreed sample (see Note 1)	Close match to agreed sample (see Note 1)	Close match to agreed sample (see Note 1)	Appendix A (see Note 2)

NOTES

1 Test sample shall be compared with a sample agreed to between the purchaser and the supplier.

2 An instrumental method, agreed to between the purchaser and the supplier may be used for the determination of colour. However, in view of differences between the results obtained with various instruments, the simple visual method is given as the reference method.

6 PACKAGING AND MARKING

6.1 Packaging

The material shall be packed in suitable bags as agreed to between the purchaser and the supplier.

6.2 Marking

Each bag shall be legibly and indelibly marked or labelled with the following:

a) Name of the material;

b) Grade;

c) Name and address of manufacturer and/or supplier (including country of origin);

d) Gross mass and net mass, in kilograms; and

e) Batch or code number.

6.3 The bags may also be marked with the Certification Mark of the Sri Lanka Standards Institution illustrated below on permission being granted for such marking by the Sri Lanka Standards Institution.

NOTE - The use of the Sri Lanka Standards Institution Certification Mark (SLS Mark) is governed by the provisions of the Sri Lanka Standards Institution Act and the regulations framed thereunder. The SLS mark on products covered by a Sri Lanka Standard is an assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control, which is devised and supervised by the Institution and operated by the producer. SLS marked products are also continuously checked by the Institution for conformity to that standard as a further safeguard. Details of conditions under which a permit for the use of the Certification Mark may be granted to manufacturers or processors may be obtained from the Sri Lanka Standards Institution.

7 SAMPLING

The method of drawing representative samples of the material for ascertaining conformity to the requirements of this specification shall be as prescribed in **5** of **SLS 650:1984**.

8 METHODS OF TEST

8.1 During the analysis unless otherwise stated, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

8.2 Tests shall be carried out as prescribed in the relevant clauses of **ISO 3262:1975, SLS 650:1984** and Appendix A of this specification.

9 CRITERIA FOR CONFORMITY

A lot shall be declared as conforming to the requirements of this specification if the following conditions are satisfied:

9.1 Each bag selected as in **5.3.2** of **SLS 650:1984** and inspected for packaging and marking requirements satisfies the relevant requirements.

9.2 The composite sample tested as in **5.6** of **SLS 650:1984** satisfies the relevant requirements.

APPENDIX A

DETERMINATION OF COLOUR

PROCEDURE

Place approximately equal masses of the test sample and the agreed sample on a ground glass plate placed on a piece of white paper.

Place a piece of thin glass plate vertically between the two samples so as to form a partition. Push the samples towards each other until they come into contact with the glass plate. Remove the glass plate and flatten the surface of the two heaps with another glass plate which shall then be removed before viewing.

Examine the colour of the samples in diffuse daylight or, if good daylight is not available, make the comparison in artificial daylight.

Add carefully a few drops of either white spirit or water (as agreed between the interested parties) in such a way that the two samples are just wetted without being disturbed, and repeat the colour comparison by the same method as before.

APPENDIX B

DETERMINATION OF OIL ABSORPTION VALUE

B.1 REAGENT

Refined linseed oil, having an acid value of 5.0 mg KOH per gram to 7.0 mg KOH per gram.

B.2 APPARATUS

B.2.1 *Plate*, of ground glass or marble, at least 300 mm x 400 mm.

B.2.2 *Burette*, of capacity 10 ml.

B.2.3 *Palette knife*, with a tapered steel blade of the approximate dimensions 140 mm to 150 mm long, 20 mm to 25 mm wide at its widest point and not less than 12.5 mm wide at its narrowest point.

B.2.4 *Balance*, with an appropriate accuracy.

B.3 PROCEDURE

B.3.1 Test portion

Weigh the appropriate quantity of the sample in accordance with the expected oil absorption value as indicated in Table 2.

TABLE 2 - Appropriate quantity of the sample

Expected oil absorption value, g/100 g	Mass of the test portion, g
Less than 10	20
11 to 30	10
31 to 50	5
51 to 80	2
over 80	1

B.3.2 Determination

Place the test portion (B.3.1) on the plate (B.2.1). Add the linseed oil (B.1) slowly, 4 or 5 drops at a time, from the burette (B.2.2). After each addition, rub the oil into the product with the palette knife (B.2.3) and continue the addition of oil at this rate until conglomerates of oil and product are formed. From this point, add the oil 1 drop at a time and follow each addition of oil by thoroughly rubbing with the palette knife.

Cease the addition of oil when a paste of smooth consistency has been formed. This paste shall just spread without cracking or crumbling and shall only just adhere to the plate.

Read the burette and note the quantity of oil used. The time taken for the complete operation shall be between 20 and 25 minutes and during this time, the whole product mass shall be manipulated with maximum effort by the operator.

Where a comparison is required with the oil absorption value of an agreed sample of product, repeat the test in exactly the same way using the agreed sample.

B.4 CALCULATION

$$\text{Oil absorption value, g/100 g of product} = \frac{93\ V}{m}$$

where,

V = volume, in millilitres, of oil required;

m = mass, in grams, of the test portion.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.