SRI LANKA STANDARD 823 : 2014
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SPECIFICATION FOR
DOLOMITE (FERTILIZER GRADE)
(First Revision)

SRI LANKA STANDARDS INSTITUTION

Sri Lanka Standard
SPECIFICATION FOR DOLOMITE (FERTILIZER GRADE)
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SLS 823 : 2014

Gr. 4

SRI LANKA STANDARDS INSTITUTION
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Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

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FOREWORD

This standard was approved by the Sectoral Committee on Agriculture and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 2014-09-25.

This Sri Lanka Standard was first published in 1988. This Revision has been undertaken to include limits for potentially toxic elements.

This standard is subject to the restrictions imposed under the Regulation of Fertilizer Act No. 68 of 1988 of Sri Lanka, amendments and the regulations framed thereunder, where applicable.

Guidelines for the determination of compliance of a lot with the requirements of this standard based on statistical sampling and inspection are given in Appendix **A**.

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

In the preparation of this standard, the valuable assistance derived from the following publications are greatly appreciated AGP fertilizer specification of the Food and Agriculture Organization (FAO) of United Nations and the Association of Official Analytical Chemists (AOAC).

1 SCOPE

This standard prescribes the requirements and methods of sampling and test for dolomite of fertilizer grade.

2 REFERENCES

SLS 102 Rules for rounding off numerical values
SLS 124 Test sieves
SLS 544 Code of practice for handling and storage of bagged fertilizers
SLS 559 Method for sampling fertilizers

SLS 645 Methods of test for fertilizers
Part 6 Determination of magnesium and calcium contents.
Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), 18th Edition, 2nd Revision 2007

3 REQUIREMENTS

3.1 General requirements

The material shall consist essentially of naturally occurring dolomite rock, crushed to a free flowing powder. It shall be free from visible foreign matter.

3.2 Other requirements

3.2.1 *Particle size*

The particle size shall be such that not less than 50 per cent and not more than 70 per cent by mass of the material passes through a sieve of 150 µm aperture size, and not less than 99 per cent by mass of the material passes through a sieve of 500 µm aperture size when tested according to the method given in Appendix **B**. The test sieves shall conform to **SLS 124**.

3.2.2 *Chemical requirements*

The material shall comply with the requirements given in Table 1 when tested according to the methods given in Column **4** of the table.

TABLE1-Chemical requirements for Dolomite

SI No. (1)	**Characteristics (2)**	**Requirement (3)**	**Method of test (4)**
i)	Magnesium content, as MgO, per cent by mass, min.	18	SLS 645:Part 6
ii)	Matter insoluble in hydrochloric acid, per cent by mass, max.	10	Appendix C

***NOTE**-The characteristic, matter insoluble in hydrochloric acid should be tested only in case of dispute and when required by the purchaser or vendor.*

3.2.3 *Potentially toxic elements*

The material shall also comply with the requirements given in table **2**.

TABLE 2- Limits for potentially toxic elements of Dolomite

Sl. No. (1)	Potentially toxic element (2)	Limit (3)	Method of test (4)
i)	Arsenic, as As, mg/kg, max.	0.5	AOAC Official Method 2006.3 ***See the note***
ii)	Cadmium, as Cd, mg/kg, max.	0.2	
iii)	Lead, as Pb, mg/kg, max.	3.0	
iv)	Chromium, as Cr, mg/kg,max.	35	
v)	Mercury, as Hg, mg/kg, max.	1.0	Atomic Absorption Spectrophotometry after microwave digestion

Note: *Atomic Absorption Spectrophotometry after microwave digestion can be used as an alternative method; AOAC 999.10 for Pb and Cd*

4 PACKAGING AND MARKING

4.1 Packaging

The material shall be suitably packed in sound, strong, and moisture- proof multiwall paper bags, jute bags or woven polypropylene bags with polyethylene inner lining having a minimum thickness of 50 µm.

4.2 Marking

The following information shall be marked legibly and indelibly on the packages/containers or on a label securely attached to each package or container;

a) Name of the product as *"DOLOMITE (FERTILIZER GRADE)"* in capital letters;
b) Name and address of the manufacturer/importer/distributor, including country of origin;
c) Registered trade mark, if any;
d) Net mass, in kilograms;
e) Magnesium content, as MgO;
f) Date, month and the year of manufacture;
g) Batch or code number; and
h) The words USE NO HOOKS, in capital letters.

NOTE - *When packages or containers are being reused, the existing markings shall be crossed out with indelible ink or dye.*

5. HANDLING AND STORAGE

The handling and storage of the material shall be as prescribed in **SLS 544**

6. METHODS OF TEST

6.1 Tests shall be carried out as prescribed in AOAC Official Method **2006.3, AOAC 999.10,** and Part **6** of **SLS 645** and Appendix **B** and **C** of this specification**.**

6.2 Unless otherwise stated, use only reagents of analytical grade and only distilled water or water of equivalent purity.

APPENDIX A
COMPLIANCE OF A LOT

The sampling scheme given in this Appendix should be applied where compliance of a lot to the requirements of this standard is to be assessed based on statistical sampling and inspection.

Where compliance with this standard is to be assessed based on manufacture's control systems coupled with type testing and check tests or any other procedure, an appropriate scheme of sampling and inspection should be adopted.

A.1 SCALE OF SAMPLING

A.1.1. The sampling shall be carried out as prescribed in **SLS 559**.

A.2 NUMBER OF TESTS

A.2.1 Each package selected as prescribed in **SLS 559** shall be inspected for packaging and marking requirements as given in **4.**

A.2.2 Tests for the requirements specified in **3** shall be carried out on the composite sample prepared as in **SLS 559.**

A.3 CRITERIA FOR CONFORMITY

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

A.3.1 Each package inspected as in **A.2.1** satisfies the relevant requirements.

A.3.2 The test results on the composite sample when tested as in **A.2.2** satisfies the relevant requirements.

APPENDIX B
DETERMINATION OF PARTICLE SIZE

B.1 PROCEDURE

B.1.1 Weigh, to the nearest 0.1g, about 200 g of the material and transfer to a sieve of 500 µm aperture size (conforming to **SLS 124**) with the lower receiver attached.

Shake the sieve for 5 minutes, frequently tapping the side. Disintegrate soft lumps which can be crumbled by the application of the fibers of a soft brush, taking care that the hard part of the brush does not make contact with the sieve, and that the brush is not used to brush particles through the sieve. Brush out the powder in the lower receiver and weigh. Replace the receiver and repeat the shaking and tapping procedure for 2 minutes. Add the powder in the receiver to the first portion and weigh. Repeat the process until not more than 0.04 g passes through the sieve as a percentage by mass of the material taken for the test.

B.1.2 Weigh, to the nearest 0.01 g, about 20 g of the material and transfer to a sieve of 150 µm aperture size (conforming to **SLS 124**) with the lower receiver attached and proceed as in **B.1.1**Express the mass of the material passed through the sieve as a percentage by mass of the material taken for the test.

B.2 CALCULATION

Calculate the mass of the material passed through the sieve as a percentage by mass of the material taken for the test.

APPENDIX C
DETERMINATION OF MATTER INSOLUBLE IN HYDROCHLORIC ACID

C.1 REAGENT

Hydrochloric acid, 40 per cent (V/V) solution prepared by using concentrated hydrochloric acid (rel.den. = 1.18).

C.2 PROCEDURE

Weigh, to the nearest milligram, about 2.5 g of the material into a beaker and add 40 ml to 50 ml of hydrochloric acid **(C.1)**, covering the beaker by means of a suitable cover glass immediately after addition of the acid. As soon as effervescence stops, wash the lower surface if the cover glass into the beaker evaporate the water and bake at 110^0 C to 115^0 C. After baking about 20 minutes, cool to room temperature. Add 25 ml to 30 ml Hydrochloric acid, boil and filter through a Whatman No. 41 ash less filter paper or an equivalent. Transfer thoroughly, the entire residue in the beaker as well as that adhering to the sides of the beaker, to the filter with hot water. Wash the filer free from chloride by means of hot water. Transfer the filter with its residue with its residue into a previously weighed platinum crucible and smoke off the filter paper at a low heat without letting the paper take fire. Finally ignite at 900 ^{0}C to 950 ^{0}C, cool and weigh and repeat the ignition, cooling and weighing operations until the difference in mass between two successive readings does not exceed a milligram.

C.3 CALCULATION

Matter insoluble in hydrochloric acid, per cent by mass $= \frac{(m_2 - m_1)}{m_0} \times 100$

Where;

m_0 is the mass, in grams, of the sample taken for the test;

m_1 is the mass, in grams, of the platinum crucible; and

m_2 is the mass, in grams, of the platinum crucible with the residue.

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

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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 return 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.

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