SRI LANKA STANDARD 683:1984

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SPECIFICATION FOR
FUEL OIL

SRI LANKA STANDARDS INSTITUTION

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SLS 683:1984

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.

SRI LANKA STANDARD

SPECIFICATION FOR FUEL OIL

FOREWORD

This Sri Lanka Standard has been authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1984-12-20, after the draft finalized by the Drafting Committee on Petroleum Products had been approved by the Chemicals Divisional Committee.

This specification specifies four grades of fuel oil used in oil engines and burners. The grading of fuel oil has been done according to their viscosities. The ignition quality of fuel oil used in oil engines is specified in terms of cetane number.

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

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 CS 102. The number of significant places retained in this rounded off value should be the same as that of the specified value in this specification.

In the preparation of this specification assistance obtained from the publications of the International Organization for Standardization (ISO), the British Standards Institution and the Institute of Petroleum, London, is gratefully acknowledged.

1 SCOPE

1.1 This specification prescribes requirements and methods of sampling and test for fuel oils for industrial and marine use.

1.2 This specification does not cover bunker products such as gas oil and marine diesel fuel for marine use.

2 REFERENCES

BS 2869 Petroleum fuels for oil engines and burners

CS 102 Presentation of numerical values

SLS 561 Methods of sampling petroleum and petroleum products

SLS 584 Methods of test for petroleum and petroleum products

SLS 653 Glossary of terms for petroleum

3 TERMINOLOGY

3.1 For the purpose of this specification definitions given in SLS 653 shall apply:

4 GRADES

4.1 There shall be four grades of the products.

a) Fuel oil 500

b) Fuel oil 800

c) Fuel oil 1 000

d) Fuel oil 2 000

5 REQUIREMENTS

5.1 Composition

5.1.1 The products shall be homogeneous mixtures of hydrocarbon oils with additives intended to improve ignition, combustion or other aspects of performance. The material shall be free from grit, fibrous material and other foreign matter likely to interfere with the operation of normal equipment.

5.2 Other requirements

5.2.1 The product shall also conform to the requirements specified in Table 1, when tested in accordance with the methods indicated in Column 7 of the table.

TABLE 1 - Requirements for fuel oils

Sl. No.	Characteristic	Requirements				Methods of test (Ref.to publi-cations given in Clause 9 and SLS 584)
		Fuel oil 500	Fuel oil 800	Fuel oil 1 000	Fuel oil 2 000	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i	Acidity, inorganic	Nil	Nil	Nil	Nil	SLS 584 : M : 1
ii	Ash, per cent by mass, max.	0.1	0.1	0.2	0.2	SLS 584 : M :19
iii	Flash point, ^{o}C,min.	60	60	60	60	SLS 584 : M : 6
iv	Redwood 1 viscosity at 37.8 ^{o}C, seconds, minimum	500	800	1 000	2 000	SLS 584 : M :20 (see Note)
v	Sediment, per cent by mass, max.	0.25	0.25	0.25	0.25	SLS 584 : M :21
vi	Total sulfur, per cent by mass, max.	3.5	3.5	4.0	4.0	SLS 584 : M :11
vii	Water content, per cent by volume, max.	1.0	1.0	1.0	1.0	SLS 584 : M :22
viii	Pour point, ^{o}C, max.	15.5	21	21	21	SLS 584 : M :23
ix	Gross calorific value, in cal/g, min.	10 250	10 250	10 250	10 250	IP 12
x	Cetane number, min.	35	35	not specified	not specified	SLS 584 : M :24
xi	Carbon residue, per cent by mass, max.	not specified	not specified	0.2	0.2	SLS 584 : M :25 (Conradson Method)
xii	Carbon residue per cent by mass, on 10 per cent distillation residue, max.	0.2	0.2	not specified	not specified	SLS 584 : M :25 (Conradson Method)

NOTE - Kinematic viscosity shall be determined at 50 ^{o}C as specified in SLS 584:M:20 and the Redwood 1 viscosity at 37.8 ^{o}C shall be reported using viscosity - temperature chart given in BS 2869:1970.

6 PACKAGING AND MARKING

6.1 Packaging

6.1.1 The product shall be packed in suitable metal containers and shall be securely closed.

6.1.2 All containers in which the product is packed shall be dry, clean and leak proof.

6.2 Marking

6.2.1 Each container shall be marked legibly and indelibly with the following:

a) Name of the material;

b) Grade;

c) Name and address of the manufacturer, recognized trade mark or brand name, if any; and

d) Volume of the contents in litres.

6.3 The containers 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

7.1 For the purpose of this specification, all sampling shall be carried out in accordance with the relevant sections of SLS 561:Part 1.

8 NUMBER OF TESTS

8.1 From each of the sample container prepared as in 6.2 or 6.3 of SLS 561:Part 1, an equal quantity of material shall be transferred to another container and mixed thoroughly to form a composite sample.

8.2 The remaining portion of material in each container constitute an individual sample representing a particular container in the lot.

8.3 Tests on total sulfur and cetane number (see Table 1) shall be conducted on individual samples and the other tests on the composite sample.

9 METHODS OF TEST

9.1 Tests shall be carried out as specified in SLS 584:Volume 1 and Volume 2 and the relevant IP method given in IP Standards for Petroleum and its products Part 1, Methods of Analysis and Testing, Volume 1, (Published by Institute of Petroleum, London).

10 CRITERIA FOR CONFORMITY

10.1 The material shall be declared as conforming to this specification if the individual samples and the composite sample satisfies the relevant requirements when tested as mentioned in 8.3.

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.