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मानक

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IS 15770 (2008): Light Diesel Oil - Specification [PCD 3: Petroleum, Lubricants and their Related Products]



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“Knowledge is such a treasure which cannot be stolen”



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भारतीय मानक  
लाईट डीज़ल तेल — विशिष्टि

*Indian Standard*  
LIGHT DIESEL OIL — SPECIFICATION

ICS 75.180.20

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

## FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Petroleum, Lubricants and Their Related Products Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

The fourth revision of IS 1460 : 2000 'Automotive diesel fuels — Specification' covers the requirements and test methods of High Speed Diesel (HSD) and Light Diesel Oil (LDO) meant for automotive and non-automotive application respectively. Considering the ever increasing stringency in the requirements of automotive diesel fuel to meet the emerging emission norms, it has been decided to split the existing standard in to two separate standards covering specifications for HSD and LDO. Accordingly, it was decided to bring out a new standard for LDO, meant for non-automotive purposes, as the fifth revision of IS 1460 covers only HSD for automotive applications.

LDO is used in medium and slow speed diesel engines employed in earth moving equipment, pump sets, power generation, marine engines, industrial application, heating purposes, etc. Considering the fact that the diesel engines are used in these applications, requirements of LDO have been specified in this standard.

The following alternate test methods are also available for the characteristics stated and in case of dispute the corresponding [P : ] of IS 1448, as given in Table 1 of this standard shall be the referee test method:

<i>Characteristic</i>	<i>Alternate Method of Test</i>
Pour point	ASTM D 5950
Density	ISO 12185
Water content	IP 471
Total sulphur	ASTM D 4294, IP 336

Nothing in this standard shall, however, preclude observance of the regulations, which may be more restrictive.

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 analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## *Indian Standard*

# LIGHT DIESEL OIL — SPECIFICATION

### 1 SCOPE

This standard prescribes the requirements and methods of sampling and tests for light diesel oil for use in diesel engines in applications such as earth moving equipment, pump sets, power generation, marine engines, industrial application, heating purposes, etc.

### 2 REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

<i>IS No.</i>	<i>Title</i>
1260 (Part 1) : 1973	Pictorial marking for handling and labelling of goods: Part 1 Dangerous good ( <i>first revision</i> )
1447 (Part 1) : 2000	Petroleum and its products—Methods of sampling: Part 1 Manual sampling ( <i>first revision</i> )
1448	Methods of test for petroleum and its products:
[P : 2] : 1967	Acidity ( <i>first revision</i> )
[P : 4] : 1984	Ash, sulphated ash and water soluble ash ( <i>second revision</i> )
[P : 8] : 1967	Carbon residue by Ramsbottom method ( <i>first revision</i> )
[P : 10] : 1970	Cloud point and pour point ( <i>first revision</i> )
[P : 12] : 1967	Colour by ASTM colour scale ( <i>first revision</i> )
[P : 15] : 1976	Detection of copper corrosion from petroleum products by the copper strip tarnish test ( <i>second revision</i> )
[P : 16] : 1990	Density of crude petroleum and liquid petroleum products by hydrometer method ( <i>third revision</i> )
[P : 21] : 1992	Flash point (closed) by Pensky Martens apparatus ( <i>second revision</i> )
[P : 25] : 1976	Determination of Kinematic and dynamic viscosity ( <i>first revision</i> )
[P : 30] : 1970	Sediment in crude and fuel oils by extraction ( <i>first revision</i> )

### *IS No.*

### *Title*

[P : 32] : 1992	Density and relative density ( <i>second revision</i> )
[P : 33] : 1991	Sulphur by bomb method ( <i>second revision</i> )
[P : 40] : 1987	Water by distillation ( <i>third revision</i> )

### 3 REQUIREMENTS

#### 3.1 General

The material shall be hydrocarbon oils derived from petroleum. Suitable fuel additives without harmful side-effects can be used to improve the performance quality. The material shall be free from grit, suspended matter and other visible impurities. The gross calorific value of the fuel may be in the range of 10 000 to 10 500 kcal/kg.

**3.1.1** It is either a viscous distillate fuel or a blend of distillate fuel and residuum oil.

**3.1.2** The use of dyes or markers is permitted.

**3.2** The material shall also comply with the requirements prescribed in Table 1 when tested according to the appropriate methods prescribed in col 4 of Table 1.

### 4 PACKING AND MARKING

#### 4.1 Packing

The material shall be packed in suitable containers as agreed to between the purchaser and the supplier, and subject to the provision of Red Tariff No. 18 Rules and Rates for the Conveyance by Rail of Explosives and Other Dangerous Goods, issued by the Indian Railway Conference Association, with any alternations or additions made thereafter.

#### 4.2 Marking

**4.2.1** The material shall be supplied in accordance with the marking and delivery instructions given by the purchaser.

**4.2.2** Each container shall be marked with the following information:

- a) Name and grade of the material;
- b) Indication of the source of manufacture, initials or trade-mark, if any;

**Table 1 Requirements of Light Diesel Oil**  
(Clause 3.2)

Sl No.	Characteristics	Requirements	Method of Test, Ref to [P:] of IS 1448
(1)	(2)	(3)	(4)
i)	Acidity, inorganic	Nil	[P : 2]
ii)	Ash, percent by mass, <i>Max</i>	0.02	[P : 4]
iii)	Carbon residue (Ramsbottom) on whole sample, percent by mass, <i>Max</i>	1.5	[P : 8]
iv)	Pour point <sup>1)</sup> , <i>Max</i> :		[P : 10]
	a) Winter	12°C	
	b) Summer	21°C	
v)	Copper strip corrosion for 3 h at 100°C	Not worse than No. 2	[P : 15]
vi)	Flash point: Pensky Martens, °C, <i>Min</i>	66	[P : 21]
vii)	Kinematic viscosity cSt, at 40°C	2.5 to 15.0	[P : 25]
viii)	Sediment, percent by mass, <i>Max</i>	0.10	[P : 30]
ix)	Density at 15°C kg/m <sup>3</sup>	To be reported	[P : 16] [P : 32] <sup>2)</sup>
x)	Water content percent by volume, <i>Max</i>	0.25	[P : 40]
xi)	Total sulphur percent by mass, <i>Max</i>	1.5 <sup>3)</sup>	[P : 33]

<sup>1)</sup> Winter shall be the period from November to February (both months inclusive) and rest of the months of the year shall be called as summer.

<sup>2)</sup> In case of dispute [P : 32] shall be the referee test method.

<sup>3)</sup> The stringent limits are applicable in certain areas as notified by the competent authority from time-to-time.

- c) Volume of the contents, in litres;
- d) Year of manufacture or packing; and
- e) The caution label 'FLAMMABLE' together with the corresponding symbol for labelling dangerous goods as given in Fig. 5 of IS 1260 (Part 1).

#### 4.3 BIS Certification Marking

The container may also be marked with the Standard Mark.

**4.3.1** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

#### 5 SAMPLING

Representative samples of the material shall be drawn as prescribed in IS 1447 (Part 1).

## Bureau of Indian Standards

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### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

### BUREAU OF INDIAN STANDARDS

#### Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002  
Telephones : 2323 0131, 2323 3375, 2323 9402

Telegrams : Manaksanstha  
(Common to all offices)

#### Regional Offices :

Telephone

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg  
NEW DELHI 110 002

{ 2323 7617  
2323 3841

Eastern : 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi  
KOLKATA 700 054

{ 2337 8499, 2337 8561  
2337 8626, 2337 9120

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160 022

{ 260 3843  
260 9285

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600 113

{ 2254 1216, 2254 1442  
2254 2519, 2254 2315

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)  
MUMBAI 400 093

{ 2832 9295, 2832 7858  
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