



उत्पाद मैनुअल

IS 15770:2021 के अनुसार

PRODUCT MANUAL
FOR Heating OIL(LDO) -
SPECIFICATION ACCORDING TO IS
15770:2021

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations,2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.

1.	मानक संख्या IS No.	:	IS 15770 : 2021
	शीर्षक Title	:	Heating Oil (LDO)– Specification
	संशोधनों की संख्या No. of amendments	:	Nil
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Composition of fuel oil in accordance with cl.3.1 to be declared by manufacturer/supplier

b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Not Applicable
c)	नमूने का परिमाण Sample Quantity	:	2 litres
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex-A
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex-B
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	All tests are possible in one day		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 15770 with the following scope:		
	Name of the product	Heating Oil (LDO)	

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

ANNEX – A

LIST OF TEST EQUIPMENT

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests Used In With Clause Reference	Test Equipment/Chemical
1	Cl 3.2 Table 1, Sl no i) Acid number mg/KOH [IS 1448 (P2)]	Potentiometer titration apparatus (manual/automatic), Calomel reference electrode, Variable speed mechanical stirrer, Titration beaker, Burette, Indicator, Conical flask, Non aqueous acidic buffer, Non-aqueous basic buffer solution, Hydrochloric acid, Isopropyl alcohol, Potassium Hydroxide, Titration solvent, , Potassium chloride
2	Cl 3.2 Ash , percent by mass Table 1, Sl no ii) [IS 1448 (P4 sec-1)]	Evaporating dish or platinum/silica crucible, Muffle furnace, desiccators, weighing balance; Toluene, Isopropyl alcohol
3	Cl 3.2 carbon residue, Table 1, Sl no iii) [IS 1448 (P8)]	Glass coking bulb, control bulb, Syringe, Metal coking furnace, temperature measuring device, weighing balance, desiccator, 150 micron sieve
4	Cl 3.2 Pour point , Table 1, Sl no iv) [IS 1448 (P10/Sec 2)]	Apparatus for pour point including Flat bottomed cylindrical jar; thermometers; cork; water tight cylindrical metal jacket, rubber gasket; cooling baths; timing device, sodium chloride
5	Cl 3.2, Table 1, Sl no v) Copper Strip Corrosion 1448(P 15)	Copper strips, Silica carbide paper/cloth, Pressure vessel, Borosilicate test tubes, Liquid bath for pressure vessel, Bath for test tubes, Temperature sensor, Forceps, Polishing holder, Corrosion standard chart, wash solvent
6	Cl 4.6, Table 1, Sl no vi) Flash point (Pensky Martens) [IS 1448(P 21)]	Flash point apparatus; Temperature measuring devices; Barometer, Heating bath or oven; glass rod
7	Cl 3.2 Table 1, Sl no vii) Kinematic viscosity at 40oC [IS 1448(P 25/Sec 1)]	viscometer; viscosity reference standards; Viscometer holder; Temperature-controlled bath; temperature measuring device; timer; Cleaning solution, sample solvent, Drying solvent
8	Cl 3.2, Table 1, Sl no viii) Sediments[IS 1448(P 30)]	Extraction (Erlenmayer) flask, Condenser; Extraction thimble; thimble basket; water cup; heater/hot plate; analytical balance; heating oven, Toluene ,desiccator
9	Cl 3.2, Table 1, Sl no ix Density at 15°C kg/m ³ [IS 1448(P 16)]	Hydrometer cylinders; hydrometers(as per cl.5.2); constant temperature bath; thermometer, stirring rod;
10	Cl 3.2, Table 1, Sl no x) Water content [IS 1448(P 40)]	Xylene/toluene; Dean and Stark apparatus (glass or metal still, a heater, a reflux condenser, and a graduated glass trap); electric heater, Petroleum distillate
11	Cl 3.2, Table 1, Sl no xi) Total Sulphur ASTM D 4294	Energy Dispersive-XRay Fluorescence Analyzer, Analytical Balance, Removable Sample cup, X-ray Detector, UV Fluorescence Detector, Microlitre Syringe, Removable sample cup, Furnace, Combustion Tube, ; Carrier Inert Argon gas, Oxygen (99.75%), Gas cylinders with high purity, Dibutyl sulfide reference Material

ANNEX B

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is the entire quantity of the product produced under similar conditions in a batch at a time shall constitute a control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on the container transporting Fuel oil, provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 If material is supplied in tank cars, tank trucks, container ships etc. the Standard Mark as given in Schedule of the licence and Licence Number (i.e. CM/L) shall be incorporated on a test certificate to be provided along with each tank car/tank truck/container ship as per the format at Appendix-1 enclosed, provided always that the product thus marked conforms to all the requirement of the specification. Packing shall be done as per provisions of Indian Standard and the marking details as per IS 15770:2021 shall also be indicated on the test certificate.

3.3 Additional Marking requirements: The material shall also be marked with the following additional requirement on the container transporting Heating oil:

a) “For BIS certification details please visit www.bis.gov.in”

4 REJECTION - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1

(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or)S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
3.1.1	free from grit, suspended matter, and other visible impurities	--	IS 15770	R	Firm to have adequate in process controls to ensure compliance to this parameter of the IS and appropriate records shall be maintained for evidence of conformity		
3.2, Sl no i)	Acid number, mg KOH/gm	--	IS 1448 (P : 2)	R	One	Each Control unit	---
3.2, Sl no ii)	Ash, percent by mass	--	IS 1448 (P : 4/ Sec 1)	R	One	Each Control unit	---
3.2 Sl no iii)	Carbon residue, on whole samples, percent by mass	--	IS 1448(P : 8)	R	One	Each Control unit	---
3.2 Sl no iv)	Pour Point °C	--	IS 1448 (P :10/ Sec 2)	R	One	Each Control unit	---
3.2 Sl no v)	Copper strip corrosion for 3 h at 100 °C	--	IS 1448 (P : 15)	R	One	Each Control unit	---
3.2 Sl no vi)	Flash point (Pensky Martens)	--	IS 1448(P : 21)	R	One	Each Control unit	---
3.2 Sl no vii)	Kinematic viscosity at 40°C	--	IS 1448(P : 25/Sec 1)	R	One	Each Control unit	---
3.2 Sl no viii)	Sediment, percent by mass	--	IS 1448(P : 30)	R	One	Each Control unit	---
3.2 Sl no ix)	Density at 15°C kg/m3	--	IS 1448 (P : 16)	R	One	Each Control unit	---
3.2 Sl no x)	Water content, percent by volume	--	IS 1448 (P : 40)	R	One	Each Control unit	---
3.2 Sl no xi)	Total Sulphur, percent by mass	--	ASTM D 4294	R	One	Each Control unit	---

Appendix-1

TEST CERTIFICATE XYZ COMPANY
(REGISTERED OFFICE ADDRESS AND WORKS ADDRESS)
TEST CERTIFICATE FOR FUEL OIL (LDO) AS PER IS 15770:2021

TEST CERTIFICATE NO. _____

DATED _____

SUPPLIED TO M/s _____ (Name and Address of Consignee)

It is certified that the material described below fully conforms to IS 15770: 2021. The properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks License No. CM/L _____ are as indicated below against each order no. etc. (PLEASE REFER TO IS 15770: 2021 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order no. and date	Control Unit/ Batch Number	Month and Year of manufacture	Quantity	Requirements												Remarks
				Description	Acid number, mg KOH/gm	Ash, percent by mass	Carbon residue, on whole samples, percent by mass	Pour point	Copper strip corrosion for 3 h at 100°C	Flash point (Pensky Martens)	Kinematic viscosity at 40°C	Sediment, percent by mass	Density at 15°C kg/m3	Water content, percent by volume	Total Sulphur, percent by mass	

The material supplied conforms to specified requirements of IS 15770: 2021
REMARKS: Tank Car / Tank Truck / Container ship no.

(Signature)
For XYZ Company