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उत्पाद मैनुअल

FOR SPECIFICATION FOR AXLE OIL

IS 1628: 1986 के अनुसार

PRODUCT MANUAL
FOR SPECIFICATION FOR AXLE Oil
ACCORDING TO IS 1628: 1986

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 1628: 1986
	शीर्षक Title	:	SPECIFICATION FOR AXLE OIL
	संशोधनों की संख्या No. of amendments	:	1
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Mineral Oil
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer Annexure - A
c)	नमूने का परिमाण Sample Quantity	:	1 Litre

d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	Grade (Light/Medium/Heavy) Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	: Please refer to Annex-B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	: Please refer to Annex-C
5.	एक दिन में संभावित परीक्षण Possible tests in a day	:
	All Tests	
6.	लाइसेंस का दायरा /Scope of the Licence:	
	“Licence is granted to use Standard Mark as per IS 1628: 1986 with the following scope:	
	Name of the product	AXLE OIL
	Varieties/Type/Grades etc.	Light/Medium/Heavy

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

ANNEX-A

GROUPING GUIDELINES

1. Each grade intended to be covered in the scope of the licence is to be tested.
2. Scope of licence shall be restricted based on the manufacturing and testing facilities available.
3. During operation of licence, samples of each grade covered in the scope of licence, shall be tested in rotation, to the extent possible

ANNEX – B

LIST OF TEST EQUIPMENT

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests Used In With Clause Reference	Test Equipment/Chemical
1	GENERAL (As per IS: 1628:1986 Clause 3.1)	Visual
2	ACIDITY (a)INORGANIC, (b)ORGANIC (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (i))	• Concentrated Hydrochloric acid • m-nitrophenol • Potassium chloride electrolyte (KCL) • Propan-2-ol • Potassium hydroxide • Alcoholic/KOH solution • Beaker • Methyl Orange Indicator • Potentiometric Titration Apparatus/Manual Titration Apparatus • Burette • 2,4,6-Trimethylpyridine/Sulfur-free hydrocarbon solvent • Analytical Balance (0.01 g) L.C • Hot plate • Pipette • Potassium Hydrogen Phthalate • Toluene • Distilled Water • p-Naphthol Benzene Indicator
3	ASH, PERCENT BY MASS, MAX (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (ii))	• Electrical Muffle Furnace (775 ± 25°C) • Platinum/Silica/Porcelain Crucible • Analytical Balance (0.1 mg) L.C • Bunsen Burner • Forceps • Cooling Vessel (Desiccator) • Mixer/Mechanical Shaker (Non-aerating) • Propan-2-ol • Toluene • Filter Paper
4	POUR POINT, MAX (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (iii))	• Apparatus for Pour Point Test • Glass Thermometer IP14C • Test Jar cylindrical fitted by cork • Stopwatch
5	COPPER STRIP CORROSION AT 100 °C, FOR 3H (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (iv))	• Copper Strip • Forceps

		• 2,2,4-Trimethylpentane/Sulfur-free hydrocarbon solvent • Cotton wool • Silicon carbide paper (240 Grit) • Silicon-carbide powder (150 mesh) • Pressure vessel Method or Test Tube Method • Test tubes • Test baths • Glass Thermometer IP64C • Beaker (150 ml) • Stopwatch • Test Tube Jar • Corrosion Standard • Polishing Holder
6	FLASH POINT CLOSED (PENSKY-MARTENS), MIN (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (v))	• Pensky-Martens Closed Cup Flash Point Apparatus • Glass Thermometer IP16C • Barometer • Cleaning solvent • Toluene • Acetone • Methanol • Heating bath or oven • Liquid for verification (CRM-Method)
7	ASPHALTENE CONTENT PERCENT BY MASS (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (vi))	• Extraction Apparatus • Stopwatch • Oven (100 to 110°C) • Graduated Cylinders (50 to 100 ml) • Stirring Rods (150 × 3 mm) • Cooling Vessel/Desiccator • Mixer/Shaker • Filter Paper • Toluene • Heptane • Analytical Balance (0.1 mg) • Forceps • Ammonium peroxydisulfate/Concentrated Sulphuric acid
8	KINEMATIC VISCOSITY AT 60°C (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (vii))	• Viscometer tube • Glass Thermometer IP35C • Viscometer Thermostat and Bath • Viscometer Tube Holders • Temperature Controlling Bath (Viscosity Bath) • Stopwatch

		• Acetone • 2,2,4-Trimethylpentane/Sulfur-free hydrocarbon solvent
9	WATER CONTENT PERCENT BY MASS (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (viii))	• Dean and Stark Apparatus • Heating Mantle • 2,4,6-Trimethylpyridine /Sulfur-free hydrocarbon solvent • Petroleum distillate (Toluene/Xylene) • Micro burette/ Micropipette • Distilled Water
10	SAPONIFICATION VALUE, MAX (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (ix))	• Reflux Condenser • 0.5 (N) HCL • 0.5 (N) KOH • Ethyl Methyl Ketone (Butanone-2) • Phenolphthalein Indicator • Analytical Balance (0.01 g) • Erlenmeyer flask/Conical Flask (300 ml) • Petroleum Spirit • Ethanol 95% • Hot Plate/Water Plate • Burette/Pipette
11	VISCOSITY INDEX, MIN (As per IS: 1628:1986 Clause 3.2, Table-1, Sl. No. (x))	• Viscometer Bath • Viscometer Tube • Viscometer Tube Holders • Glass Thermometer IP92C • Stopwatch • Glass Thermometer IP32C • 2,4,6-Trimethylpyridine/Sulfur-free hydrocarbon solvent

ANNEX C

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 : AXLE OIL of same grade produced in a batch 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 each container (suitable closed containers) 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 Additional Marking requirements: The material shall also be marked with the following additional requirement on each container (suitable closed containers):

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	GENERAL	3.1	IS 1628:1986	Firm to have adequate in-process controls to check compliance of this parameter as given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity.			
3.2, Table 1, (i) (a)	ACIDITY -INORGANIC	...	IS 1448 [P:2]	R	One	Each Control Unit	-
3.2, Table 1, (i) (b)	ACIDITY -ORGANIC (mg of KOH/g of the oil),	...	IS 1448 [P:2]	R	One	Each Control Unit	
3.2, Table 1, (ii)	ASH, PERCENT BY MASS,	Method-A	IS 1448 [P:4]	R	One	Each Control Unit	-
3.2, Table 1, (iii)	POUR POINT,	...	IS 1448 [P:10]	R	One	Each Control Unit	-
3.2, Table 1, (iv)	COPPER STRIP CORROSION AT 100 °C, FOR 3hr	...	IS 1448 [P:15]	R	One	Each Control Unit	-
3.2, Table 1, (v)	FLASH POINT CLOSED (PENSKY-MARTENS),	...	IS 1448 [P: 21]	R	One	Each Control Unit	-
3.2, Table 1, (vi)	ASPHALTENE CONTENT PERCENT BY MASS	...	IS 1448 [P: 22]	R	One	Each Control Unit	-
3.2, Table 1, (vii)	KINEMATIC VISOSITY AT 60°C IN CENTISTOKES	...	IS 1448 [P: 25]	R	One	Each Control Unit	-

3.2, Table 1, (viii)	WATER CONTENT PERCENT BY MASS, MAX	...	IS 1448 [P: 40]	R	One	Each Control Unit	-
3.2, Table 1, (ix)	SAPONIFICATION VALUE, MAX	...	IS 1448 [P: 55]	R	One	Each Control Unit	-
3.2, Table 1, (x)	VISCOSITY INDEX, MIN	...	IS 1448 [P: 56]	R	One	Each Control Unit	-