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उत्पाद मैनुअल
व्हील बेयरिंग ग्रीस — विशिष्टि

IS 10647 : 2025 के अनुसार

PRODUCT MANUAL

Wheel Bearing Grease — Specification

ACCORDING TO IS 10647 : 2025

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 10647 : 2025
	शीर्षक Title	:	Wheel Bearing Grease — Specification
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Refined mineral lubricating oil shall meet the specifications for Kinematic Viscosity and Flash point as specified in clause 3.2 of IS 10647:2025
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	NA
c)	नमूने का परिमाण Sample Quantity	:	1 Kg
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	Name of the Product: Shelf life: 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-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		
	i. Consistency of the grease at 25 ± 0.5 °C a) Unworked penetration b) 60 strokes c) 10000 strokes ii. Roll stability test, 4h, change in consistency iii. Free Organic acidity (as Oleic acid) iv. Free alkalinity (as sodium hydroxide) v. Copper strip corrosion at 100 °C for 24 h vi. Water content vii. Soap content viii. Kinematic viscosity in Cst at 100°C ix. Flash point, Cleaveland (open), cup		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	"Licence is granted to use Standard Mark as per IS 10647 : 2025 with the following scope:		
	Name of the product	Wheel Bearing Grease	

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

ANNEX – A

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl.No.	Tests used in with Clause Reference	Test Equipment
1.	Consistency of the grease at 25±0.5°C a) Unworked penetration Shall not differ by more than 25 units from 60 strokes b) 60 strokes c) 10 000 strokes (Cl. 3.4 & Table 1 Sl. No. i)	Cone Penetrometer (Penetrometer with standard cone), Grease worker, Mechanical Grease worker, Grease cutter, water or Air bath, as mentioned in IS 1448 Part 60.
2.	Drop point (Cl. 3.4 & Table 1 Sl. No. ii)	Grease cup (a chromium plated brass cup) conforming to IS 1448 Part 52, Test tube, metal rod, thermometer, Oil Bath.
3.	Free Organic acidity (as Oleic acid) (Cl. 3.4 & Table 1 Sl. No. iii)	Petroleum hydrocarbon solvent (60/80), phenolphthalein, Hydrochloric Acid, Alcoholic potassium hydroxide solution 0.5 N, Rectified Spirit, glass stoppered bottles, conical flasks, filter, whatman filter paper, glass wool, weighing balance, burettes, pipettes, hot plate, reflux condenser as mentioned in IS 1448 Part 53.
4.	Free alkalinity (as sodium hydroxide) (Cl. 3.4 & Table 1 Sl. No. iv)	
5.	Copper strip corrosion at 100°C for 24 hrs (Cl. 3.4 & Table 1 Sl. No. v)	Copper Strip -Cold-rolled strip not less than 0.5 mm thick, cut into pieces 75 mm long and 13 mm wide. Oven, Beaker, Ether, Petroleum Hydrocarbon Solvent, Carborundum Powder as mentioned in IS 1448 Part 51.
6.	Water content (Cl. 3.4 & Table 1 Sl. No.vi)	Dean Stark apparatus, still, heater, toluene, xylene, Petroleum distillate fractions, Petroleum spirit (Iso-octane), as mentioned in IS 1448 Part 40.
7.	Soap content (Cl. 3.4 & Table 1 Sl. No.vii)	n-Hexane, Dilute Hydrochloric Acid, Standard Alcoholic Potassium Hydroxide, (KOH) Solution, Rectified Spirit, Acetone, Phenolphthalein Indicator Solution, Concentrated Hydrochloric Acid (HCl), Diethyl Ether, acetone, weighing balance, Erlenmeyer flask, reflux condenser, Gooch crucible, filter flasks, filter papers, funnel, steam bath, separating funnel, Soxhlet .apparatus, burettes, pipettes, etc as mentioned in IS 1448 Part 138.
8.	Oxidation stability (100 h), drop in pressure (Cl. 3.4 & Table 1 Sl. No.viii)	Oxidation bomb, Pressure gauge, Oil bath, dish holder, sample dishes, thermometer, oxygen-99.5% pure, weighing balance, hot water, cleaning agent, hot sulphuric acid-chromic acid solution, as mentioned in IS 1448 Part 94.

9.	Thermal stability, 30 h at 100°C (Cl. 3.4 & Table 1 Sl. No. ix)	Apparatus of thermal stability including Cone, Beaker, Oven as mentioned in IS 1448 Part 89.
10	Leakage and deposit forming tendencies (wheel bearing test) a) Leakage by mass, Max b) Deposit in the wheel bearing races or the rollers c) Evidence of abnormal changes in the consistency or structure of the material d) Indication of dry running of races (Cl. 3.4 & Table 1 Sl. No.x)	Front Wheel and spindle assembly as mentioned in IS 1448 Part 196, heptane
11.	Roll stability test, 4 h, change in consistency (Cl. 3.4 & Table 1 Sl. No.xi)	Roll Stability Test Apparatus, One-quarter or One-half Scale Cone and Shaft with Worker, as described in IS 1448 (Part 116), weighing balance, etc, as mentioned in IS 1448 Part 165.
12.	Kinematic viscosity (Clause 3.2)	Viscometer, glass capillary type, as per IS 1448(Part 25/Sec 1), Viscometer Holder, Plumb Line, Temperature Controlled Bath, Certified Viscosity Reference Standards, Temperature measuring device, Time Measuring device, Cleaning reagents: Solvents, Chromic Acid, Acetone, HCl, distilled water.
13.	Flash point, cleaveland (open) cup (Clause 3.2)	Cleveland open cup apparatus, shield, thermometer, and barometer, cleaning solvents, steel wool, Certified reference material, Secondary working standard as mentioned in IS 1448 Part 69.

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 material mixed in one operation 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 of Wheel Bearing Grease or printed on the label applied to the container, as the case may be, provided always that the material in the container to which this mark is thus applied conforms to every 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 consumer pack or on each container of Wheel Bearing Grease.

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.	Requirements	Test Method Cl. Ref.	Test Method IS		No. of samples	Frequency	Remarks
3.1	General requirement	3.1	IS 10647	R	One	Every Control unit	
3.4 & Table 1	Consistency of grease at 25 ± 0.5 °C						
-do-	(a) Unworked penetration	3.4	IS 1448 Part 60	R	One	-do-	
-do-	(b) 60 strokes	-do-	-do-	R	One	-do-	
-do-	(c) 10 000 strokes	-do-	-do-	R	One	Every alternate control unit	
-do-	Drop point	-do-	IS 1448 Part 52	R	One	Every control unit	
-do-	Free Organic acidity (as Oleic acid)	-do-	IS 1448 Part 53	R	One	Every control unit	
-do-	Free alkalinity (as sodium hydroxide)	-do-	-do-	R	One	Every control unit	
-do-	Copper strip corrosion at 100 °C for 24 h	-do-	IS 1448 Part 51	R	One	Every Fourth control unit	
-do-	Water content, per cent by mass	-do-	IS 1448 Part 40	R	One	Every Fourth control unit	
-do-	Soap content	-do-	IS 1448 Part 138	R	One	Every control unit	
-do-	Oxidation stability 100 h drop in pressure	-do-	IS 1448 Part 94	R	One	Every Fifteenth control unit	
-do-	Thermal stability test, 30h at 100 °C percent oil separated	-do-	IS 1448 Part 89	R	One	Every Fourth control unit	
-do-	Leakage and deposit forming tendencies (wheel bearing test) a) Leakage by mass b) Deposit in the wheel bearing races or the rollers c) Evidence of abnormal changes in the consistency or structure of the material'	-do-	IS 1448 Part 196	R	One	Every Alternate control unit	

	d) Indication of dry running of races						
-do-	xi) Roll stability test, 4h, change in consistency, percent,	-do-	IS 1448 Part 165	R	One	Every control unit	
3.2	Kinematic viscocity in Cst at 100°C	3.2	IS 1448 Part 25/Sec 1	R	One	-do-	These tests are to be carried out on the refined mineral lubricating oil used for the manufacture of grease.
-do-	Flash point, Cleaveland (Open), cup, °C	-do-	IS 1448 Part 69	R	One	-do-	
3.3	Keeping Properties (shelf life)	3.3	IS 10647	S	one	As per declared life	