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भारतीय मानक मसौदा
व्हील बेयरिंग ग्रीज — विशिष्ट
(IS 10647 का पहला पुनरीक्षण)

Draft Indian Standard

WHEEL BEARING GREASE — SPECIFICATION
(First Revision of IS 10647)

(ICS 75.100)

Lubricants and related Products Sectional Committee,

Last date for receipt of comment is

PCD 25

13 December 2023

FOREWORD

(Formal Clauses will be added later).

This standard was published in 1983.

Standards are available on number of specifications on greases such as automotive grease, general purpose grease, graphite grease, antifriction bearing grease, locomotive grease, low temperature grease, lithium soap grease, etc. but there was no suitable specification for a good quality wheel bearing grease which is required by the automotive industry and railways. In order to meet the requirements of the industry, this specification was prepared with a view to facilitate the supply of this product to the various users.

In this first revision, clauses for references, marking, and referred test methods have been updated.

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: 2022 'Rules for rounding off numerical values revised (second revision)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for wheel bearing grease intended for use as lubricant in automotive wheel bearings, universal joints, axle journal boxes, etc.

2 REFERENCES

The standards listed in Annex A 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 listed in Annex A.

3 REQUIREMENTS

3.1 General

The material shall be homogeneous and of fibrous texture and free from objectionable odour and visible impurities. No fillers should be used in the composition.

3.2 Composition

The material shall be made from refined mineral lubricating oil of the following specifications and sodium soap with or without additives:

<i>Characteristic</i>	<i>Requirement</i>	<i>Method of Test, Ref to Parts of IS 1448</i>
Kinematic viscosity in mm ² /s at 100 °C	15.5 to 20.5	(Part 25/Sec1)
Flash Point, (COC) °C, <i>Min</i>	200	(Part 69)

NOTE — 1 cSt = 1 mm²/s.

3.3 Keeping Properties (Shelf Life)

The keeping quality of the material shall be such that when stored in original sealed containers under normal conditions, it shall retain the properties given in the specification for not less than one year from the date/month of packing of the product.

3.4 The material shall also comply with the requirements given in Table 1 when tested according to the methods given in col 4 of Table 1.

4 PACKING AND MARKING

4.1 Packing — The material shall be packed in metal or any other suitable containers as agreed to between the purchaser and the supplier.

4.2 Marking

Material shall be marked with the following information:

- a) Name and type of material;
- b) Manufacturer's name, initials or trade-mark, if any;
- c) Net mass of material;
- d) Date and/or month of packaging;
- e) Identification in code or otherwise to enable the lot of consignment or manufacture to be traced back from records; and
- f) Any other statutory requirements.

4.2.1 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the Bureau of Indian Standards Act, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.

5 SAMPLING

Representative samples of the material shall be drawn as prescribed in IS 1447 (Part 3).

5.1 Number of Tests — All characteristics given in the specification shall be tested on the composite sample.

5.2 Criteria for Conformity — The lot shall be declared as conforming to the requirements of the specification if all the test results on the composite sample meet the relevant specification requirements of this standard.

Table 1 Requirements for Wheel Bearing Grease
(Clause 3.4)

Sl No.	Characteristic	Requirement	Method of test, Ref to Parts of IS 1448
(1)	(2)	(3)	(4)
i)	Consistency of the worked grease at 25 ± 0.5 °C		(Part 60)
	a) Unworked penetration	Shall not differ by more than 25 units from 60 strokes	
	b) 60 strokes	250 to 280	
	c) 10,000 Strokes	Shall not differ by more than 25 units from 60 strokes	
ii)	Drop point, °C, <i>Min</i>	180	(Part 52)
iii)	Free organic acidity, (as oleic acid), percent by mass, <i>Max</i>	0.25	(Part 53)
iv)	Free alkalinity (as sodium hydroxide), percent by mass, <i>Max</i>	0.30	(Part 53)
v)	Copper strip corrosion at 100°C for 24 h	1a	(Part 51)
vi)	Water content, percent by mass, <i>Max</i>	0.30	(Part 40)
vii)	Soap content, percent by mass, <i>Max</i>	20	(Part 138)
viii)	Oxidation stability (<i>see</i> Note) (100 h), at 100 °C, drop in pressure, kgf/cm ² , <i>Max</i>	1.0	(Part 94)
ix)	Thermal stability, 30 h at 100 °C, percent by mass oil separated, <i>Max</i>	6.0	(Part 89)
x)	Leakage and deposit forming tendencies (wheel bearing test)		PCD 01 (18454)
	a) Leakage by mass, g, <i>Max</i>	8.0	
	b) Deposit in the wheel bearing races or the rollers	Shall be free from deposits	
	c) Evidence of abnormal changes in the consistency or structure of the material	Not limited, but the observations are to be reported	
	d) Indication of dry running of races	-do-	
xi)	Roll stability test, , change in consistency, percent after 4 h, <i>Max</i>	10.0	(Part 165)

NOTE – Serial No. (viii) is type test for which manufacturers/suppliers shall give the guarantee for its compliance.

ANNEX A
(Clause 2)

LIST OF REFERRED STANDARDS

<i>IS No.</i>	<i>Title</i>
IS 1447 (Part 3) : 1992	Petroleum and its products — Methods of sampling : Part 3 Method of sampling of semi-solid and solid petroleum products (<i>first revision</i>)
IS 1448	Methods of tests for petroleum and its products
(Part 25 / Sec1) : 2018/ ISO 3014:1994	Transparent and opaque liquids Section 1 — Determination of kinematic viscosity and calculation of dynamic viscosity (<i>second revision</i>)
(Part 40) : 2015 / ISO 3733 : 1999	Petroleum products and bituminous materials — Determination of water — Distillation method (<i>fourth revision</i>)
(Part 51) : 2023	Copper strip corrosion test for lubricating greases
(Part 52) : 2017 / ISO 2176 : 1995	Drop point (<i>second revision</i>)
(Part 53) : 1979	Determination of acidity and alkalinity of greases (<i>first revision</i>)
(Part 60) : 2023 / ISO 2137 : 2020	Consistency of lubricating greases by cone penetrometer (<i>second revision</i>)
(Part 69) : 2013 / ISO 2592 : 2000	Determination of flash and fire points — Cleveland open cup method (<i>first revision</i>)
(Part 89) : 2023	Test for thermal stability of lubricating greases
(Part 94) : 2019	Test for oxidation stability of lubricating grease by Oxygen pressure vessel method (<i>first revision</i>)
(Part 138) : 2023	Determination of soap content (<i>first revision</i>)
(Part 165) : 2018	Test method for roll stability of lubricating grease
PCD 01 (18454)	Methods of test for petroleum and its product : Part 1 Determination of the leakage tendencies of automotive wheel bearing greases