

**Raudteealased rakendused. Teljelaagripuksides
kasutatavad määrdeained. Osa 2: Meetod
mehaanilise stabiilsuse kontrollimiseks veeremi
kiirustel kuni 200 km/h KONSOLIDEERITUD TEKST**

Railway applications - Axlebox lubricating greases -
Part 2: Method to test the mechanical stability to cover
vehicle speeds up to 200 km/h CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 14865-2:2006+A2:2010 sisaldab Euroopa standardi EN 14865-2:2006+A1:2009+A2:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.12.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 27.10.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 14865-2:2006+A2:2010 consists of the English text of the European standard EN 14865-2:2006+A1:2009+A2:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.12.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 27.10.2010.

The standard is available from Estonian standardisation organisation.

ICS 45.040, 75.100

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

English Version

**Railway applications - Axlebox lubricating greases - Part 2:
Method to test the mechanical stability to cover vehicle speeds
up to 200 km/h**

Applications ferroviaires - Graisses lubrifiantes pour boîtes
d'essieux - Partie 2: Méthode d'essai de stabilité
mécanique pour des vitesses de véhicules allant jusqu'à
200 km/h

Bahnanwendungen - Schmierfette für Radsatzlager - Teil 2:
Prüfverfahren für mechanische Stabilität bei
Schienenfahrzeugen bis zu Geschwindigkeiten von 200
km/h

This European Standard was approved by CEN on 9 January 2006 and includes Amendment 1 approved by CEN on 24 February 2009 and Amendment 2 approved by CEN on 14 September 2010.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

page

Foreword.....	3
Introduction.....	4
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Testing principle	5
5 Reagents and materials	5
6 Apparatus	5
7 Sampling	5
8 Testing procedure.....	6
8.1 General.....	6
8.2 Preparation of the apparatus.....	6
8.3 Washing procedure	6
8.4 Assembly of the bearings	6
8.5 Volume and distribution of the test lubricating grease	6
8.6 Assembly of the box.....	6
8.7 Assembly of the machine	7
8.8 Calibrating the machine	7
8.9 Running the test.....	8
8.10 Dismantling the machine after testing	8
8.11 Disassembly of the bearings	8
9 Evaluation.....	9
9.1 Recording	9
9.2 Leakage.....	9
9.3 Penetration	9
10 Precision	9
10.1 General.....	9
10.2 Repeatability.....	10
10.3 Reproducibility.....	10
11 Test report	11
12 Other test rig	11
Annex A (normative) V2F test rig	12
Annex B (normative) Axlebox.....	13
Annex C (informative) Round Robin test	14
C.1 Result	14
C.2 Symbols in the Figures C.1 and C.2.....	14
C.3 Test data distribution	15
Annex D (informative) Precision calculation examples.....	17
D.1 Repeatability example	17
D.2 Reproducibility example	17
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community (Recast) EN	18
Bibliography.....	20

Foreword

This document (EN 14865-2:2006+A2:2010) has been prepared by Technical Committee CEN/TC 256 "Railway applications", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2011, and conflicting national standards shall be withdrawn at the latest by April 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1, approved by CEN on 2009-02-24 and Amendment 2 approved by CEN on 2010-09-14.

This document supersedes A1 EN 14865-2:2006+A1:2009 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1 and A2 A2.

A2 This document has been prepared under a mandate given to CEN/CENELEC/ETSI by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

For relationship with EU Directive 2008/57/EC, see informative Annex ZA, which is an integral part of this document. A2

EN 14865 consists of the following parts, under the general title *Railway applications — Axlebox lubricating greases*:

- *Part 1: Method to test the ability to lubricate*
- *Part 2: Method to test the mechanical stability to cover vehicle speeds up to 200 km/h*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

A test method is standardized, which is referred to in EN 12081.

This European Standard standardizes a test method and acceptance criteria for the demand in EN 12081 for testing the mechanical stability of axlebox lubricating greases. It addresses the issue of mechanical stability of lubricating greases operating under severe conditions.

All lubricants have three main functions – to form a lubricating film that separates rolling elements and raceways, to protect the bearings from corrosion and to give good longevity. For lubricating grease there is a further demand: the product needs to be mechanically stable in use. Currently several common lubricating grease shear stability tests are available to industry, but the procedure in this European Standard is the most severe. It has been available for many years and it is used to discriminate between lubricating greases of different stabilities.

1 Scope

This European Standard specifies a test method and sets the acceptance criteria for the determination of the mechanical stability of lubricating greases intended for the lubrication of axlebox bearings according to EN 12081. In the test, impacts are applied to the lubricating grease so that only very stable lubricating greases will perform acceptably. The method is used in a discrimination process for finding lubricating greases of such mechanical stability that they are considered accepted lubricating greases for more extensive performance tests according to EN 12082.

For purposes of quality assurance and quality control, this test method is also used for batch testing of lubricating greases.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness)* (ISO 868:2003)

EN ISO 3170, *Petroleum liquids — Manual sampling* (ISO 3170:2004)

EN ISO 4259:1995, *Petroleum products — Determination and application of precision data in relation to methods of test* (ISO 4259:1992/Cor 1:1993)

ISO 2137:1985, *Petroleum products — Lubricating grease and petrolatum — Determination of cone penetration*

ISO 5725-6:1994, *Accuracy (trueness and precision) of measurement methods and results — Part 6: Use in practice of accuracy values*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.