# Raudteealased rakendused. Rattapuksid. Määrdeained KONSOLIDEERITUD TEKST

Railway applications - Axleboxes - Lubricating greases CONSOLIDATED TEXT

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

| | |
|---|---|
| Käesolev Eesti standard EVS-EN 12081:2008+A1:2010 sisaldab Euroopa standardi EN 12081:2007+A1:2010 ingliskeelset teksti. | This Estonian standard EVS-EN 12081:2008+A1:2010 consists of the English text of the European standard EN 12081:2007+A1:2010. |
| Standard on kinnitatud Eesti Standardikeskuse 31.12.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas. | 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. |
| Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 27.10.2010. | Date of Availability of the European standard text 27.10.2010. |
| Standard on kättesaadav Eesti standardiorganisatsioonist. | The standard is available from Estonian standardisation organisation. |



**ICS** 75.100

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 12081:2007+A1

October 2010

ICS 75.100

Supersedes EN 12081:2007

English Version

# Railway applications - Axleboxes - Lubricating greases

Applications ferroviaires - Boîtes d'essieux - Graisses pour lubrification

Bahnanwendungen - Radsatzlager - Schmierfette

This European Standard was approved by CEN on 8 December 2007 and includes Amendment 1 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**



Ref. No. EN 12081:2007+A1:2010: E

# Contents

Page

# Foreword

This document (EN 12081:2007+A1:2010) 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 2010-09-14.

This document supersedes [A1] EN 12081:2007 [A1].

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

[A1] 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. [A1]

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

This European Standard has been drawn up with the purpose to define the minimum requirements of greases used for the lubrication of rolling bearings in railway axleboxes. The purpose is to ensure a certain performance level in the interest of operating safety in international traffic. Performance implies a certain quality level of the vehicle running gear, which every railway undertaking may require, notably by imposing procedures in approval and quality assurance for the supply of axleboxes.

Lubricating greases intended for use in axlebox bearing application need to fulfil the requirements of this European Standard, complying with Table A.1. Additional requirements for high speed or specific bearing types, environment or operating conditions are detailed in Table B.1.

This specification has been written so that it reflects the typical performance of e.g. a NLGI grade 2 simple lithium soap grease, based on a mineral oil with a base oil viscosity of 100 $mm^2/s$ at 40 °C such as would be found in current use. However, this specification needs to not restrict or limit grease evolution for more demanding applications of today and in the future, hence several parameters are left open for agreement. For example, the base oil viscosity can be reduced for high speed applications, and where sealed bearing units are being used the grease grade may need to be lower.

## 1 Scope

This European Standard specifies the quality requirements of greases intended for the lubrication of axlebox rolling bearings according to EN 12080, required for reliable operation of trains on European networks. It covers the approval procedure, the method of quality control and quality monitoring of the grease. The grease requirements are given for two speed classes.

## 2 Normative references

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

EN 12082, *Railway applications — Axleboxes — Performance testing*

prEN 14865-1, *Railway applications — Axlebox lubricating greases — Part 1: Method to test the ability to lubricate ordinary-speed vehicles with speeds up to 200 km/h and high-speed vehicles with speeds up to 300 km/h*

EN 14865-2, *Railway applications — Axlebox lubricating greases — Part 2: Method to test the mechanical stability to cover vehicle speeds up to 200 km/h*

EN ISO 3104, *Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity (ISO 3104:1994)*

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

ISO 2176, *Petroleum products — Lubricating grease — Determination of dropping point*

ISO 3733, *Petroleum products and bituminous materials — Determination of water — Distillation method*

ISO 11007, *Petroleum products and lubricants — Determination of rust-prevention characteristics of lubricating greases*

ISO 13737 *Petroleum products and lubricants -- Determination of low-temperature cone penetration of lubricating greases*

BS 2000-121[1)], *Methods of test for petroleum and its products — Determination of oil separation from lubricating grease — Pressure filtration method*

DIN 51777-2[2)], *Prüfung von Mineralöl-Kohlenwasserstoffen und Lösungsmitteln — Bestimmung des Wassergehaltes, nach Karl Fischer — Indirektes Verfahren*

DIN 51811, *Prüfung von Schmierstoffen — Prüfung der Korrosionswirkung von Schmierfetten auf Kupfer — Kupferstreifenprüfung*

DIN 51817, *Prüfung von Schmierstoffen — Bestimmung der Ölabscheidung aus Schmierfetten unter statischen Bedingungen*

DIN 51820-1, *Prüfung von Schmierstoffen — Infrarotspektrometrische Analyse von Schmierfetten — Aufnahme und Auswertung von Infrarotspektren*

---

[1)] BS — BSI Customer Services, British Standards Institution, 389 Chiswick High Road, London W4 4AL, United Kingdom, Tel.: +44 (0) 20 8996 9001, Fax: +44 (0) 20 8996 7001, E-mail: cservices@bsi-global.com.

[2)] DIN — Beuth Verlag GmbH, 10772 Berlin, Tel.: +49 0 30/26 01-0, Fax: +49 0 30/26 01-12 60.

DIN 53521, *Prüfung von Kautschuk und Elastomeren — Bestimmung des Verhaltens gegen Flüssigkeiten, Dämpfe und Gase*

NF F 19-502 [3)], *Matériel roulant ferroviaire — Méthode d'essais des graisses pour boîtes d'essieux à roulements — Essai de résistance aux vibrations et aux chocs sur banc ROPECS*

NF F 19-503, *Matériel roulant ferroviaire — Méthode d'essais des graisses pour boîtes d'essieux à roulements — Essai dynamique de la stabilité à l'oxydation des graisses*

NF F 19-504, *Matériel roulant ferroviaire — Méthode d'essais des graisses pour boîtes d'essieux à roulements — Essai d'aptitude à la lubrification sur machine R2F*

NF T60-189, *Graisses lubrifiantes — Tendance à l'écoulement des graisses pour moyeux de roues automobiles*

NF T60-191, *Produits pétroliers et graisses lubrifiantes — Séparation d'huile au stockage des graisses lubrifiantes — Méthode sous pression — Conditions statiques*

ASTM D1831[4)], *Standard Test Method for Roll Stability of Lubricating Grease*

## 3 Terms and definitions

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

**3.1**
**customer**
railway undertaking, manufacturer or buyer of railway rolling stock or subassemblies, or their representative

**3.2**
**railway undertaking**
organisation or its representative, whatever status it has, which is responsible for the registration of rolling stock

**3.3**
**supplier**
supplier of lubricating greases manufactured under his responsibility

**3.4**
**network**
infrastructure, on which any railway undertaking can operate rolling stock

**3.5**
**grease**
semi-solid lubricant, which consists of a thickener and additives dispersed in a lubricating oil

**3.6**
**grease batch**
entire content of a single production of grease from a finishing vessel



[3)] NF — Association Française de Normalisation (AFNOR), 11 avenue Francis de Pressensé, 93571 La Plaine Saint-Denis Cedex, Tel.: +33 (0) 1 41 62 80 00, Fax: +33 (0) 1 49 17 90 00.

[4)] ASTM — ASTM International, 100 Barr Habor Drive, PO Box C700, West Conshohocken, PA, 19428-2959 USA, Tel.: +1 (610) 832-9585, Fax: +1 (610) 832-9555.