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Railway applications - Axleboxes - Lubricating greases

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

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See Eesti standard EVS-EN 12081:2025 sisaldab Euroopa standardi EN 12081:2025 ingliskeelset teksti.	This Estonian standard EVS-EN 12081:2025 consists of the English text of the European standard EN 12081:2025.
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ICS 75.100

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12081

December 2025

ICS 75.100

Supersedes EN 12081:2017

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 17 November 2025.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 12081:2025) 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of an identical text or by endorsement, at the latest by June 2026, and conflicting national standards shall be withdrawn at the latest by May 2026.

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

This document supersedes EN 12081:2017.

EN 12081:2025 includes the following significant technical changes with respect to EN 12081:2017:

— modifications and update of criteria, conditions and references for grease tests that are required for conformity assessment;

— modification of grease storage requirements;

— focus on minimum requirements for assessing the conformity of the grease with product related requirements. This replaces the use of the ambiguous term approval;

— compatibility assessment of grease with polymers and thermoplastic material moved to EN 12082-2.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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1 Scope

This document is a part of a package of standards: EN 12080, EN 12081, EN 12082-1 and EN 12082-2. This document 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 requirements for conformity assessment of new greases, as well as requirements for quality batch control and change management.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ASTM D 7303, *Standard Test Method for Determination of Metals in Lubricating Greases by Inductively Coupled Plasma Atomic Emission Spectrometry*

DIN 51460-1, *Testing of petroleum products — Method for sample preparation — Part 1: Microwave incineration*

DIN 51777, *Petroleum products — Determination of water content using titration according to Karl Fischer*

DIN 51811, *Testing of lubricants — Testing of corrosiveness to copper of greases — Copper strip tarnish test*

DIN 51820, *Testing of lubricants; analysis of greases by infrared spectrometry; taking and evaluating an infrared spectrum*

DIN 51829, *Petroleum products — Determination of additive and wear elements in greases — Analysis by wavelength dispersive X-ray fluorescence spectrometry*

EN 14865-1, *Railway applications — Axlebox lubricating greases — Part 1: Method to test the ability to lubricate*

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)*

EN ISO 11885, *Water quality - Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES) (ISO 11885)*

ISO 2137, *Petroleum products and lubricants — Determination of cone penetration of lubricating greases and petrolatum*

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

ISO 11007-1, *Petroleum products and lubricants — Determination of rust-prevention characteristics of lubricating greases — Part 1: Dynamic wet conditions*

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ISO 12940-1,[1] *Petroleum products and lubricants — Determination of roll stability of lubricating grease — Part 1: Dry condition test*

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

ISO 22285, *Petroleum products and lubricants — Determination of oil separation from grease — Pressure filtration method*

ISO 22286, *Petroleum products and lubricants - Determination of the dropping point of grease with an automatic apparatus*

NF F 19-502, *Railway rolling stock — Test method of greases for axle-boxes to rolling bearings — Vibrations and shocks enduring test on machine « ROPECS »*

NF F 19-503, *Railway rolling stock — Test method of greases for axle-boxes to rolling bearings — Dynamic test for stability to oxydation of grease*

NF F 19-504, *Railway rolling stock — Test method of greases for axle-boxes to rolling bearings — Grease suitability test on the « R2F » machine*

NF T 60-637, *Water content in grease by Karl Fischer after purging after final survey*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1
certificate of analysis
CoA
document issued by the supplier that certifies the quality of the grease batch

3.2
customer
railway undertaking, entity in charge of the maintenance, manufacturer or buyer of railway rolling stock or subassemblies, bearing manufacturer or their representative

3.3
railway undertaking
organization or its representative, whatever status it has, which is responsible for registration of rolling stock

3.4
supplier
supplier of lubricating greases manufactured under his responsibility

[1] Under preparation. Stage at the time of publication: ISO/DIS 12940-1:2024

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