

Railway applications - Wheel/Rail friction management  
- Part 1-1: Equipment and Application - Flange  
Lubricants

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
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English Version

## Railway applications - Wheel/Rail friction management - Part 1-1: Equipment and Application - Flange Lubricants

Applications ferroviaires - Gestion des frottements  
roue/rail - Partie 1-1 : Équipement et application -  
Lubrification des boudins de roues

Bahnanwendungen - Reibungsmanagement zwischen  
Rad und Schiene - Teil 1-1: Vorrichtungen und  
Anwendung - Spurkranzschmierstoffe

This European Standard was approved by CEN on 17 January 2022.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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## European foreword

This document (EN 15427-1-1:2022) 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of an identical text or by endorsement, at the latest by September 2022, and conflicting national standards shall be withdrawn at the latest by September 2022.

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 15427:2008+A1:2010.

This document is part of the following series:

- EN 15427-1-1, *Railway applications - Wheel/Rail friction management - Part 1-1: Equipment and Application – Flange lubrication*
- CEN/TS 15427-1-2, *Railway applications - Wheel/Rail friction management - Part 1-2: Equipment and Application – Top of Rail materials*
- CEN/TS 15427-1-3, *Railway applications - Wheel/Rail friction management - Part 1-3: Equipment and Application – Adhesion materials*
- EN 15427-2-1, *Railway applications - Wheel/Rail friction management - Part 2-1: Properties and Characteristics – Flange lubricants*
- CEN/TS 15427-2-2, *Railway applications - Wheel/Rail friction management - Part 2-2: Properties and Characteristics – Top of Rail materials*
- CEN/TS 15427-2-3, *Railway applications - Wheel/Rail friction management - Part 2-3: Properties and Characteristics – Adhesion materials*

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.

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## Introduction

Friction management using solid or fluid (oil, grease, etc) substances at the wheel-rail interface is a complex subject and includes:

- lubrication of the wheel flange / rail gauge corner interface, commonly referred to as “flange or rail lubrication”;
- lubrication of the back of flange/ check rail interface, commonly referred to as “check rail lubrication”;
- altering the level of friction at the interface between the top of rail and the wheel tread, commonly referred to as “top of rail friction management”;
- applying materials to the wheel rail contact to increase (improve/ enhance/ recover) adhesion.

This document sets out requirements for the lubrication of the wheel flange / rail gauge corner and back of flange/ check rail interface. It describes systems fitted on board trains and on the track, as both systems may need to be employed to achieve effective lubrication of the wheel-rail interface.

Managing the wheel-rail interface effectively will reduce wear of both wheel and rail. When friction is managed effectively, noise levels, wear levels and the risk of flange climbing are reduced. Conversely, where not managed effectively, assets may require replacement prematurely before reaching their full economic potential.

There needs to be control in the application of lubrication such that there is:

- no loss of traction or braking performance;
- no adverse effect on signalling systems or track circuits;
- understanding of the increased risk of fire;
- no harmful environmental effect;
- no incompatibility between the different lubricants/ materials in use, particularly, between solid and fluid systems.

## 1 Scope

This document specifies the requirements for equipment used to apply lubricant to the interface between the wheel flange and the gauge face of the rail, and contact area between the check rail face and the back of the wheel (active interface), either directly or indirectly to the wheel flange or to the rail, and includes both trainborne and trackside solutions.

This document specifies:

- the characteristics that systems of lubrication of the active interface should achieve, together with applicable inspection and test methods to be carried out for verification;
- all relevant terminology which is specific to the lubrication of the active interface.

This document applies to the mainline railway.

NOTE This document can also be used for other railways, e.g urban rail.

## 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.

EN 15427-2-1:2022, *Railway applications - Wheel/Rail friction management - Part 2-1: Properties and Characteristics - Flange lubricants*

## 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:

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

### 3.1

#### **active interface**

contact area between wheel flange and the gauge face of the rail and contact area between the check rail face and the back of the wheel

NOTE See Figures 1, 2 and 3.

### 3.2

#### **applicator**

part of trackside/trainborne equipment that delivers the lubricant to the active interface

EXAMPLE Nozzles or sticks.

### 3.3

#### **trainborne equipment**

system carried on the train that consists of one or more applicators, a storage unit and a means of control