ICS 29.260.20 SLOVENSKÁ TECHNICKÁ NORMA Jún 2017

STN	**Výbušné atmosféry. Časť 38: Zariadenia a komponenty vo výbušných atmosférach v hlbinných baniach (ISO/IEC 80079-38:2016).**	**STN EN ISO/IEC 80079-38** 38 9630

Explosive atmospheres - Part 38: Equipment and components in explosive atmospheres in underground mines (ISO/IEC 80079-38:2016)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/17

Obsahuje: EN ISO/IEC 80079-38:2016, ISO/IEC 80079-38:2016

Oznámením tejto normy sa od 30.06.2017 ruší
STN EN 1710+A1 (38 9710) z augusta 2008

124694

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO/IEC 80079-38

December 2016

ICS 29.260.20

Supersedes EN 1710:2005+A1:2008

English Version

Explosive atmospheres - Part 38: Equipment and components in explosive atmospheres in underground mines (ISO/IEC 80079-38:2016)

Atmosphères explosives - Partie 38: Appareils et composants destinés à être utilisés dans les mines souterraines grisouteuses (ISO/IEC 80079-38:2016)

Explosionsfähige Atmosphären - Teil 38: Geräte und Komponenten in explosionsfähigen Atmosphären in untertägigen Bergwerken (ISO/IEC 80079-38:2016)

This European Standard was approved by CEN on 18 February 2016.

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-CENELEC 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-CENELEC 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN ISO/IEC 80079-38:2016 E

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European foreword

This document (EN ISO/IEC 80079-38:2016) has been prepared by subcommittee 31M: Nonelectrical equipment and protective systems for explosive atmospheres, of IEC technical committee 31: Equipment for explosive atmospheres" in collaboration with Technical Committee CEN/TC 305 “Potentially explosive atmospheres - Explosion prevention and protection” 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 2017, and conflicting national standards shall be withdrawn at the latest by June 2017.

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.

The significant changes with respect to EN 1710+A1:2008 are included in Annex ZC “Significant changes between this European Standard and EN 1710+A1:2008".

This document supersedes EN 1710:2005+A1:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) 2014/34/EU and 2006/42/EC.

For relationship with EU Directives, see informative Annex ZA and ZB, which are integral parts of this document.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO/IEC 80079-38:2016 has been approved by CEN as EN ISO/IEC 80079-38:2016 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2014/34/EU

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2014/34/EU

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Directive 2014/34/EU

Clause(s)/sub-clause(s) of this EN	Essential Requirements (ERs) of Directive 2014/34/EU	Qualifying remarks/Notes
4; 5	1.0.1	EN ISO 80079-36
4; 5	1.0.2	
6.2; 6.3	1.0.3	
4.1; 5.1.2; 5.1.3	1.0.4	EN ISO 80079-36
8	1.0.5	EN ISO 80079-36
7.2	1.0.6	
4; 4.1; 5.3	1.1.1	EN ISO 80079-36, EN 60079-0
4.1; 4.3; 5.4; 5.5; 5.6; 5.7; 5.9	1.1.2	EN ISO 80079-36, EN 60079-0, IEC 60204-1
4.1	1.1.3	EN ISO 80079-36, EN 60079-0
4.1	1.2.1	
4	1.2.4	
4	1.2.5	
7.1	1.2.6	EN ISO 80079-36, EN 60079-0
1; 4.4; 5.3.1.7; 5.8	1.2.7 a)	EN 60204-1, EN 60204-11 and standards supporting Directive 98/37/EC deal with this subject
1; 4.1; 4.2.3; 4.4.3.1; 5.4.2; 5.5; 5.6; 5.7; 5.9; 6.1; C.8; C.9; C.10	1.2.7 b)	
1; 4.2; 6.2	1.2.7 c)	EN ISO 80079-36
1; 4.4.3; 5.8	1.2.7 d)	
4.1; 4.2; 4.3; 5.3.1.7; 5.4.1; 5.4.2;	1.2.8	

Clause(s)/sub-clause(s) of this EN	Essential Requirements (ERs) of Directive 2014/34/EU	Qualifying remarks/Notes
5.4.6		
4.3; 4.4	1.2.9	EN ISO 80079-36, EN 60079-1
1; 4.1; 4.2.3; 4.4.3.1; 5.1; 5.4.2; 5.4.3; 5.5; 5.6; 5.7; 6.1; 7.2	1.3.1	
4.1; 4.4.6.2; 5.3.2; 5.4.1; 5.4.5; 6.6; C.6	1.3.2	EN ISO 80079-36, EN 60079-0
4.1; 4.4.6; C.4; C.5	1.3.3	EN 60204-1, EN 60204-11
5.3.1.7; 5.4.2	1.3.4	EN 60204-1, EN 60204-11
	1.4.1	External effects are the subject of agreement between the manufacturer and user.
4.1	1.4.2	Resistance to chemical attack is subject to agreement between the manufacturer and user.
5.4.1; 5.7.1; 5.8	1.5.1 to 1.5.8	EN ISO 80079-37 and standards supporting the use of Work Equipment Directive (95/63/EC)
5.4.1	1.6.1 to 1.6.5	
1 (not applicable)	2.0.1	
1; 4; 5	2.0.2	EN ISO 80079-36, EN 60079-0
1; 4; 5	2.0.2.1	EN ISO 80079-36, EN 60079-0
7.1	2.0.2.2	
1 (not applicable)	2.0.2.3	
1 (not applicable)	2.1	
1 (not applicable)	2.2	
1 (not applicable)	2.3	

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

Annex ZB
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with Essential Requirement 1.5.7 of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

Annex ZC
(informative)

Significant technical changes between this document and the previous edition of this European Standard

This European Standard replaces EN 1710+A1:2008.

Table ZC.1 — Significant technical changes between this document and EN 1710+A1:2008

Significant changes	Clause	Type		
		Minor and editorial changes	Extension	Major technical changes
Normative references updated, especially references on CEN/CENELEC and their publications changed into references on international available publications	all clauses	X		
Terms and definitions has been amended.	3		X	
Ignition hazard assessment added (Clauses related to mining equipment adopted from ISO 80079-36)	4	X		
Requirements for electric cable configurations expanded	4.4.6		X	
Requirements for impellers and impeller rings expanded	5.3.1.4		X	
Requirements for brakes added	5.7		X	
Requirements for optical fibres used on machines and electromagnetic radiation from components on machines added	5.9		X	
Requirements for hydraulic and pneumatic equipment added	6.3		X	
Requirements for cable-reeled equipment expanded	6.4		X	
Marking of equipment changed in accordance with ISO 80079-36	8		X	
Annex C „Ignition sources“ added	Annex C		X	
Annex D „Guidance on potential risks for converter-fed motors“added	Annex D		X	
Annex E „ Tests for surface protective coating for group I hand tools of EPL Mb “added	Annex E		X	

Explanations:

A) Definitions

Minor and editorial changes clarification
decrease of technical requirements
minor technical change
editorial corrections

Changes in a standard classified as 'Minor and editorial changes' refer to changes regarding the previous standard, which modify requirements in an editorial or a minor technical way. Also changes of the wording to clarify technical requirements without any technical change are classified as 'Minor and editorial changes'.

A reduction in level of existing requirement is also classified as 'Minor and editorial changes'

Extension addition of technical options

Changes in a standard classified as 'extension' refers to changes regarding the previous standard, which add new or modify existing technical requirements, in a way that new options are given, but without increasing requirements for equipment that was fully compliant with the previous standard. Therefore these 'extensions' will not have to be considered for products in conformity with the preceding edition.

Major technical changes addition of technical requirements
increase of technical requirements

Changes in a standard classified as 'Major technical change' refer to changes regarding the previous standard, which add new or increase the level of existing technical requirements, in a way that a product in conformity with the preceding standard will not always be able to fulfil the requirements given in the standard. 'Major technical changes' have to be considered for products in conformity with the preceding edition. For every change classified as 'Major Technical Change' additional information is provided in clause B) of the Annex ZC.

NOTE These changes represent current technological knowledge[1]. However, these changes should not normally have an influence on equipment already placed on the market.

B) Information about the background of 'Major Technical Changes'

None

[1] see also ATEX Guide 10.3 and Annex ZA

ISO/IEC 80079-38

Edition 1.0 2016-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Explosive atmospheres –
Part 38: Equipment and components in explosive atmospheres in underground mines

Atmosphères explosives –
Partie 38: Appareils et composants destinés à être utilisés dans les mines souterraines grisouteuses

ISO/IEC 80079-38:2016-02(en-fr)

ISO/IEC 80079-38

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 13.230; 29.260.20

ISBN 978-2-8322-3180-7

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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EXPLOSIVE ATMOSPHERES –

Part 38: Equipment and components in explosive atmospheres in underground mines

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 80079-38 has been prepared by subcommittee 31M: Non-electrical equipment and protective systems for explosive atmospheres, of IEC technical committee 31: Equipment for explosive atmospheres.

It is published as a double logo standard.

The text of this standard is based on the following documents of the IEC:

FDIS	Report on voting
31M/105/FDIS	31M/111/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table. In ISO, the standard has been approved by 13 P members out of 21 having cast a vote.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

"A list of all parts in the IEC 60079 series, under the general title *Explosive atmospheres*, as well as the International Standard 80079 series, can be found on the IEC website."

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

This part of ISO/IEC 80079 specifies requirements for the constructional features of equipment and components that may be an individual item or form an assembly, to enable them to be used in mines, or parts of mines, susceptible to explosive atmospheres of firedamp and/or combustible dust.

Most of the electrical equipment used on mining machinery is certified as an individual item of equipment, e.g. the motor, switchgear etc., and meets its own marking requirements. This certification, however, does not deal with the interconnection of these items of equipment by cables or the machine electrical power system as an entity. The equipment and components, including their interconnections, should be assessed, from an ignition point of view, by the manufacturer.

Both non-electrical equipment and the interconnection of electrical/non-electrical equipment require an ignition hazard assessment.

Therefore, it is necessary that not just the equipment, but all its parts, is examined by the manufacturer according to a formally documented ignition hazard assessment that establishes and lists all the possible ignition sources of the equipment including the cables and electrical supply system. The documentation shall list the measures that shall be introduced to keep possible ignition sources from becoming effective.

The need for this International Standard arises because of major operational differences between underground mining operations and those in other industries working with, or in, explosive atmospheres. Examples of these differences are:

– the product being won from the underground strata may be combustible and may continually release firedamp during the winning process;
– the ignitability of the atmosphere around equipment and components usually depends upon the amount of dilution offered by an active ventilating system;
– the atmosphere in the general body of mine air in which machinery is working may change from one that is potentially explosive to one that is explosive (for example, during an outburst of firedamp);
– persons working in the mine are usually situated within the potentially explosive atmosphere;
– there is a need to monitor constantly the mine atmosphere at strategic places to ensure that power can be disconnected from all equipment except Ma equipment which is suitable for use in a constantly explosive atmosphere;
– in gassy coal mines, an explosion of firedamp at a machine can raise a combustible dust cloud that exacerbates the explosion;
– some mining machinery, especially that associated with winning the product, contains cutting devices and drilling devices that are intended to cut into the combustible product as part of their normal operation. This introduces an ignition risk from frictional heating or frictional sparking from contact with strata containing high concentrations of quartz or iron pyrites;
– long roadways in coal mines are equipped with mineral conveying systems carrying a product that has a potential for raising a combustible dust cloud and the production of firedamp.

To decide which equipment or its component parts should merit inclusion in this International Standard, ignition data has been examined based on international experience.

When drafting this International standard, it has been assumed that equipment and components are:

– designed in accordance with good engineering practice, taking account of expected shocks, vibrations and failure modes;

– of sound mechanical and electrical construction;

– made of materials with adequate strength and of suitable quality;

– free from defects; and

– kept in good repair and working order, e.g. so that the required dimensions remain within permissible tolerance despite wear.

EXPLOSIVE ATMOSPHERES –

Part 38: Equipment and components in explosive atmospheres in underground mines

1 Scope

This part of ISO/IEC 80079 specifies the explosion protection requirements for the design, construction, assessment and information for use (maintenance, repair, marking) of equipment that may be an individual item or form an assembly.

This includes machinery and components for use in mines susceptible to explosive atmospheres of firedamp and/or combustible dust. The standard atmospheric conditions (relating to the explosion characteristics of the atmosphere) under which it may be assumed that equipment can be operated are:

- temperature -20 °C to +60 °C;
- pressure 80 kPa (0,8 bar) to 110 kPa (1,1 bar); and
- air with normal oxygen content, typically 21 % v/v.

This part of ISO/IEC 80079 applies for equipment and components according to EPL Mb to be used in explosive atmospheres containing firedamp and/or combustible dust.

NOTE 1 In some countries, there might be differences according to the classification, e.g. Mb is similar to category M2 in the European Union.

For equipment and components according to EPL Ma, the requirements of this standard and of ISO 80079-36 and IEC 60079-0 apply.

NOTE 2 A standard with additional requirements for EPL Ma is under preparation.

It is necessary to take account of external conditions to the equipment which may affect the hazard and the resultant protection measures. These measures may include ventilation, gas detection or gas drainage.

This part of ISO/IEC 80079 also deals with the prevention of ignitions of explosive atmospheres caused by burning (or smouldering) of combustible material such as fabric fibres, plastic ”O”-rings, rubber seals, lubricating oils or greases used in the construction of the equipment if such items could be an ignition source. For example, the mechanical failure of rotating shaft bearings can result in frictional heating that ignites its plastic cage, plastic seal or lubricating grease.

Detailed requirements and test procedures for the fire protection of conveyer belts are not part of this part of ISO/IEC 80079.

2 Normative references

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

IEC 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

IEC 60079-25, *Explosive atmospheres – Part 25: Intrinsically safe electrical systems*

IEC 60204-1, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements*

IEC 60204-11, *Safety of machinery – Electrical equipment of machines – Part 11: Requirements for HV equipment for voltages above 1 000 V a.c. or 1 500 V d.c. and not exceeding 36 kV*

IEC 60332-1 (all parts), *Tests on electric and optical fibre cables under fire conditions*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 62061, *Safety of machinery – Functional safety of safety-related electrical, electronic and programmable electronic control systems*

ISO 340, *Conveyor belts – Laboratory scale flammability characteristics – Requirements and test method*

ISO 630-5, *Structural steels – Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance*

ISO 1940-1, *Mechanical vibration – Balance quality requirements for rotors in a constant (rigid) state – Part 1: Specification and verification of balance tolerances*

ISO 7010, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

ISO 13849-1, *Safety of Machinery – Safety-related parts of control systems – Part 1: General principles for design*

ISO 14916, *Thermal spraying – Determination of tensile adhesive strength*

ISO 14935, *Petroleum and related products – Determination of wick flame persistence of fire-resistant fluids*

ISO 15029-1, *Petroleum and related products – Determination of spray ignition characteristics of fire-resistant fluids – Part 1: Spray flame persistence – Hollow-cone nozzle method*

ISO/TS 15029-2, *Petroleum and related products – Determination of spray ignition characteristics of fire-resistant fluids – Part 2: Spray test – Stabilized flame heat release method*

ISO 80079-36:2016, *Explosive atmospheres – Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements*

ISO 80079-37:2016, *Explosive atmospheres – Part 37: Non-electrical equipment for explosive atmospheres – Non-electrical type of protection constructional safety 'c', control of ignition sources 'b', liquid immersion 'k'*