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CEN ISO/TS 23818-1

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English Version

Assessment of conformity of plastics piping systems for the rehabilitation of existing pipelines - Part 1: Polyethylene (PE) material (ISO/TS 23818-1:2020)

L'évaluation de la conformité des systèmes de canalisations en plastique destinés à la réhabilitation des réseaux existants - Partie 1: Matériau Polyéthylène (PE) (ISO/TS 23818-1:2020)

Konformitätsbewertung von Kunststoffrohrleitungssystemen zur Sanierung von bestehenden Rohrleitungen - Teil 1: Polyethylen (PE) (ISO/TS 23818-1:2020)

This Technical Specification (CEN/TS) was approved by CEN on 9 November 2020 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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European foreword

The text of ISO/TS 23818-1:2020 has been prepared by Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids" of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TS 23818-1:2020 by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems" the secretariat of which is held by NEN.

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Endorsement notice

The text of ISO/TS 23818-1:2020 has been approved by CEN as CEN ISO/TS 23818-1:2020 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 8, *Rehabilitation of pipeline systems.*

A list of all parts in the ISO/TS 23818 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

System standards dealing with the following applications are either available or in preparation for pipeline rehabilitation:

— ISO 11296, *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks*;

— ISO 11297, *Plastics piping systems for renovation of underground drainage and sewerage networks under pressure*;

— ISO 11298, *Plastics piping systems for renovation of underground water supply networks*;

— ISO 11299, *Plastics piping systems for renovation of underground gas supply networks*;

— ISO 21225, *Plastics piping systems for the trenchless replacement of underground pipeline networks*.

These system standards are distinguished from those for conventionally installed plastics piping systems by the requirement to verify certain characteristics in the as-installed condition, after site processing. This is in addition to specifying requirements for plastics piping system components as manufactured.

For the assessment of conformity, three Technical Specifications for pipes of distinct materials are applicable:

— ISO/TS 23818-1 (this document), *Assessment of conformity of plastics piping systems for the rehabilitation of existing pipelines — Part 1: Polyethylene (PE) material*;

— ISO/TS 23818-2[1)], *Assessment of conformity of plastics piping systems for the rehabilitation of existing pipelines — Part 2: Resin-fibre composite (RFC) material*;

— ISO/TS 23818-3[2)], *Assessment of conformity of plastics piping systems for the rehabilitation of existing pipelines — Part 3: Unplasticized poly(vinyl chloride) (PVC-U) material*.

These three Technical Specifications cover the system standards, as presented in Table 1.

1) Under preparation. Stage at the time of publication: ISO/WD TS 23818-2:2020.

2) Under preparation. Stage at the time of publication: ISO/WD TS 23818-3:2020

Table 1 — Structure of Technical Specifications for assessment of conformity

Technical Specification	Material	Technique	Application			
			Non-pressure drainage and sewerage networks	Drainage and sewerage networks under pressure	Water supply networks	Gas supply networks
ISO/TS 23818-1	PE	LINING WITH CONTINUOUS PIPES, CLOSE-FIT PIPES AND SPIRALLY WOUND PIPES	ISO 11296-2 ISO 11296-3 ISO 11296-7	ISO 11297-2 ISO 11297-3	ISO 11298-2 ISO 11298-3	ISO 11299-2 ISO 11299-3
		TRENCHLESS REPLACEMENT USING PIPE BURSTING, PIPE EXTRACTION, HORIZONTAL DRILLING AND IMPACT MOLING	ISO 21225-1 ISO 21225-2	ISO 21225-1 ISO 21225-2	ISO 21225-1 ISO 21225-2	ISO 21225-1 ISO 21225-2
ISO/TS 23818-2[a]	RFC	LINING WITH CURED-IN-PLACE PIPES (CIPP)	ISO 11296-4	ISO 11297-4	ISO 11298-4[a]	—
ISO/TS 23818-3[a]	PVC-U	LINING WITH CLOSE-FIT PIPES AND SPIRALLY WOUND PIPES	ISO 11296-3 ISO 11296-7	—	—	—

[a] Under preparation. Stage at the time of publication: ISO/DIS 11298-4.

The format of the three Technical Specifications is in line with technical specifications for assessment of conformity to other system standards, apart from presenting the detailed requirements for inspection and testing in two annexes, for non-pressure applications and pressure applications (where applicable) respectively.

The format is schematically represented in Figure 1.

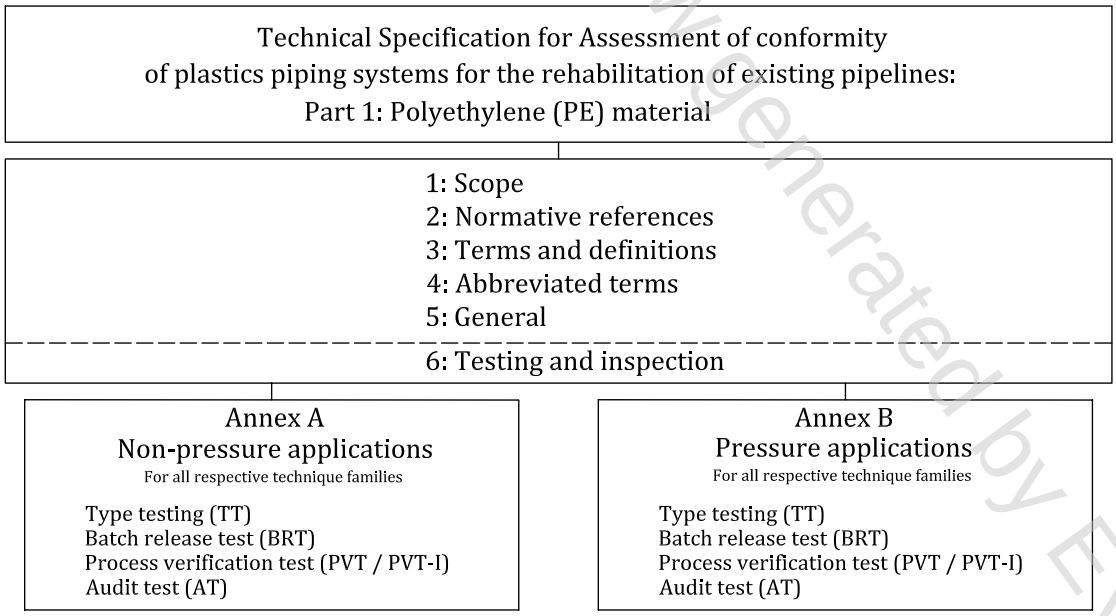

Figure 1 — Format of the Technical Specifications for conformity assessment

Figures 2 and 3 are intended to provide general information on the concept of testing and organisation of those tests used for the purpose of the assessment of conformity. For each type of test, i.e. type testing (TT), batch release test (BRT), process verification test (PVT), and audit test (AT), this document details the applicable characteristics to be assessed as well as the frequency and sampling of testing.

A typical scheme for the assessment of conformity of PE pipes, fittings, joints or assemblies by manufacturers is given in Figure 2.

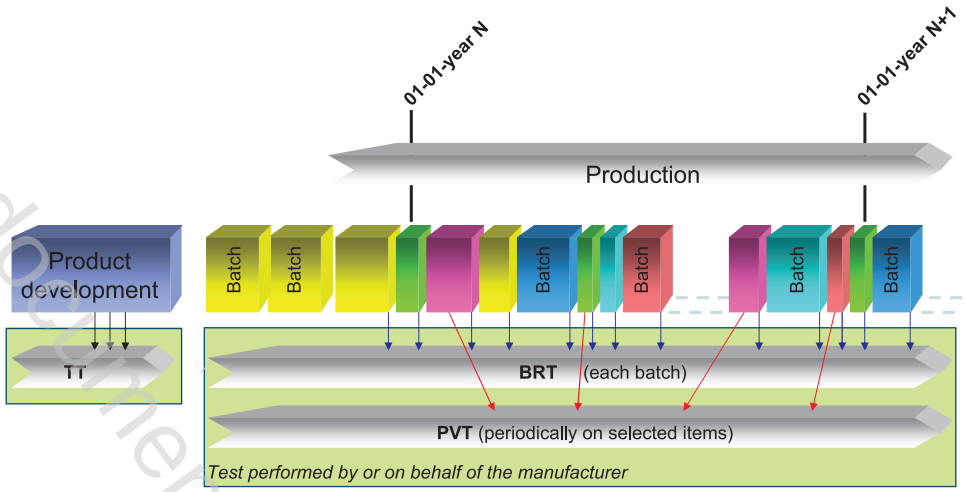

Figure 2 — Typical scheme for the assessment of conformity by a manufacturer

A typical scheme for the assessment of conformity of PE pipes, fittings, joints or assemblies by manufacturers, including certification, is given in Figure 3.

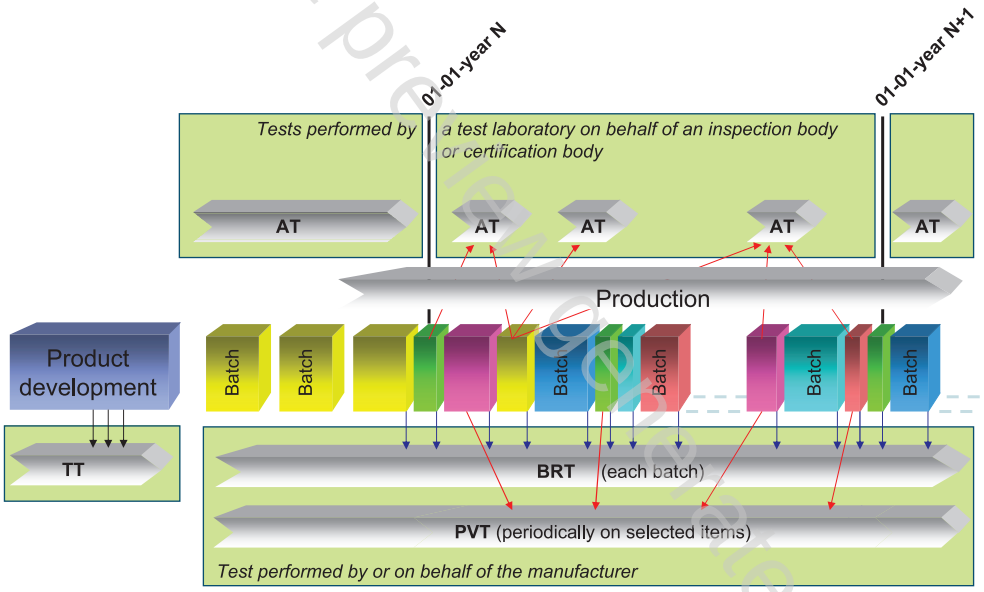

Figure 3 — Typical scheme for the assessment of conformity by a manufacturer, including certification

Assessment of conformity of plastics piping systems for the rehabilitation of existing pipelines —

Part 1: Polyethylene (PE) material

1 Scope

This document provides a scheme for the assessment of conformity of PE products and assemblies for the rehabilitation of existing pipelines, in accordance with the applicable parts of ISO 11296, ISO 11297, ISO 11298, ISO 11299 and ISO 21225, and intended to be included in the manufacturer's quality plan as part of the quality management system and for the establishment of certification procedures.

NOTE In order to help the reader, summary tables of overall scheme requirements are provided in Annex E.

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.

ISO 4427-1, *Plastics piping systems for water supply and for drainage and sewerage under pressure — Polyethylene (PE) — Part 1: General*

ISO 4427-2, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 2: Pipes*

ISO 4427-3, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 3: Fittings*

ISO 4437-1:2014, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*

ISO 4437-2:2014, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes*

ISO 4437-3:2014, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings*

ISO 6259-1, *Thermoplastics pipes — Determination of tensile properties — Part 1: General test method*

ISO 11296-1:2018, *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks — Part 1: General*

ISO 11296-2:2018, *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks — Part 2: Lining with continuous pipes*

ISO 11296-3:2018, *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks — Part 3: Lining with close-fit pipes*

ISO 11296-7:2019, *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks — Part 7: Lining with spirally-wound pipes*

ISO 11297-1:2018, *Plastics piping systems for renovation of underground drainage and sewerage networks under pressure — Part 1: General*

ISO 11297-2:2018, *Plastics piping systems for renovation of underground drainage and sewerage networks under pressure — Part 2: Lining with continuous pipes*

ISO 11297-3:2018, *Plastics piping systems for renovation of underground drainage and sewerage networks under pressure — Part 3: Lining with close-fit pipes*

ISO 11298-1:2018, *Plastics piping systems for renovation of underground water supply networks — Part 1: General*

ISO 11298-2:2018, *Plastics piping systems for renovation of underground water supply networks — Part 2: Lining with continuous pipes*

ISO 11298-3:2018, *Plastics piping systems for renovation of underground water supply networks — Part 3: Lining with close-fit pipes*

ISO 11299-1:2018, *Plastics piping systems for renovation of underground gas supply networks — Part 1: General*

ISO 11299-2:2018, *Plastics piping systems for renovation of underground gas supply networks — Part 2: Lining with continuous pipes*

ISO 11299-3:2018, *Plastics piping systems for renovation of underground gas supply networks — Part 3: Lining with close-fit pipes*

ISO 12162, *Thermoplastics materials for pipes and fittings for pressure applications — Classification, designation and design coefficient*

ISO 13477, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Small-scale steady-state test (S4 test)*

ISO 13478, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Full-scale test (FST)*

ISO 21225-1:2018, *Plastics piping systems for the trenchless replacement of underground pipeline networks — Part 1: Replacement on the line by pipe bursting and pipe extraction*

ISO 21225-2:2018, *Plastics piping systems for the trenchless replacement of underground pipeline networks — Part 2: Replacement off the line by horizontal directional drilling and impact moling*

ISO 21751, *Plastics pipes and fittings — Decohesion test of electrofusion assemblies — Strip-bend test*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in the applicable parts of ISO 11296, ISO 11297, ISO 11298, ISO 11299, ISO 21225 and the following 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 http://www.electropedia.org/