



# Technical Specification

**ISO/TS 23818-1**

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

### **Part 1: Polyethylene (PE) material**

*Évaluation de la conformité des systèmes de canalisations en  
plastique destinés à la réhabilitation des réseaux existants —*

*Partie 1: Matériau Polyéthylène (PE)*

**Second edition  
2026-02**

# Sample Document

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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](http://www.iso.org/iso/foreword.html).

This document was prepared by ISO/TC 138 *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 8, *Rehabilitation of pipeline systems*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 155, *Plastics piping systems and ducting systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO/TS 23818-1:2020), which has been technically revised.

The main changes are as follows:

- the document has been amended following the merging and renumbering of International Standards concerning piping systems, referred to in this document.
- in [Clause 3](#), seven definitions have been removed by reference to ISO 11295;
- the technique family "lining with spirally-wound pipes" has been excluded and the respective content has been incorporated in ISO/TS 23818-4.

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](http://www.iso.org/members.html).

## Introduction

International Standards dealing with the following applications are either available or in preparation for pipeline rehabilitation:

- ISO 11300: *Piping systems for rehabilitation of underground drains, sewers and water supply networks*;
- ISO 11301: *Piping systems for rehabilitation of underground gas supply networks*.

These International 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, five technical specifications for pipe systems of distinctive materials are applicable:

- ISO/TS 23818-1 (this document);
- ISO/TS 23818-2;
- ISO/TS 23818-3;
- ISO/TS 23818-4.

These technical specifications cover the International Standards concerning piping systems, as presented in [Table 1](#).

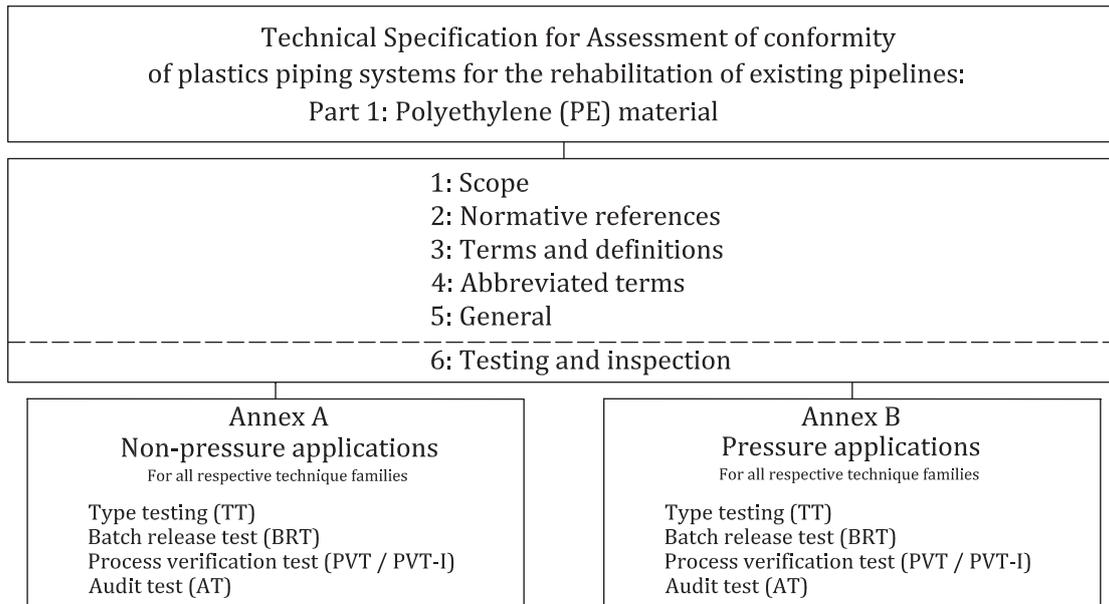
**Table 1 — Structure of technical specifications for assessment of conformity**

Technical Specification	Material	Technique	Application	
			Drains, sewers and water supply networks	Gas supply networks
ISO/TS 23818-1	PE	Lining with continuous pipes and close fit pipes trenchless replacement using pipe bursting, pipe extraction, horizontal drilling and impact moling	ISO 11300-1	ISO 11301-1
ISO/TS 23818-2	Thermoset composite	Lining with cured-in-place pipes (CIPP)	ISO 11300-2	n/a
ISO/TS 23818-3	PVC-U	Lining with close-fit pipes	ISO 11300-3	n/a
ISO/TS 23818-4 <sup>a</sup>	Thermoplastic composite	Lining with spirally wound pipes and rigidly anchored plastic liners (RAPL)	ISO 11300-4	n/a
— <sup>b</sup>	PA-U	— <sup>b</sup>	n/a	— <sup>b</sup>
<sup>a</sup> In preparation				
<sup>b</sup> Under development (as Part 5)				

The format of 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 for this document in [Figure 1](#).

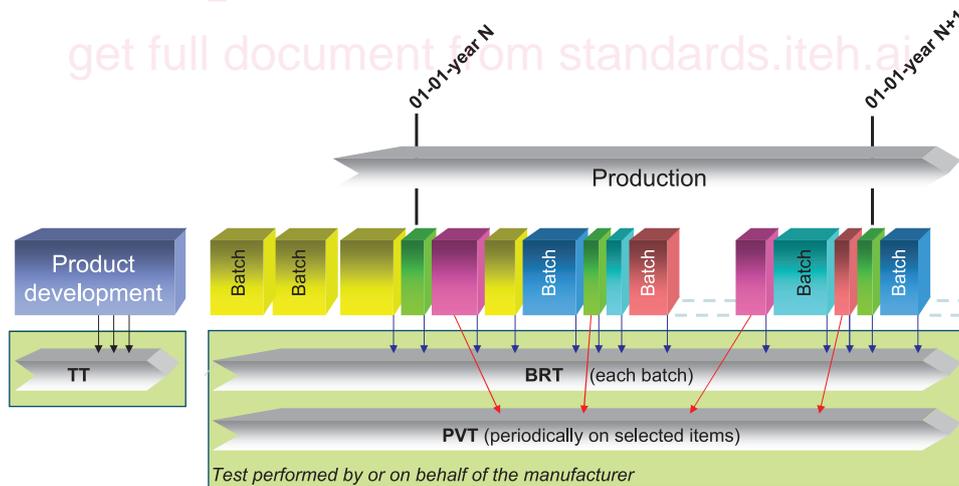
# ISO/TS 23818-1:2026(en)



**Figure 1 — Format of the technical specifications for conformity assessment**

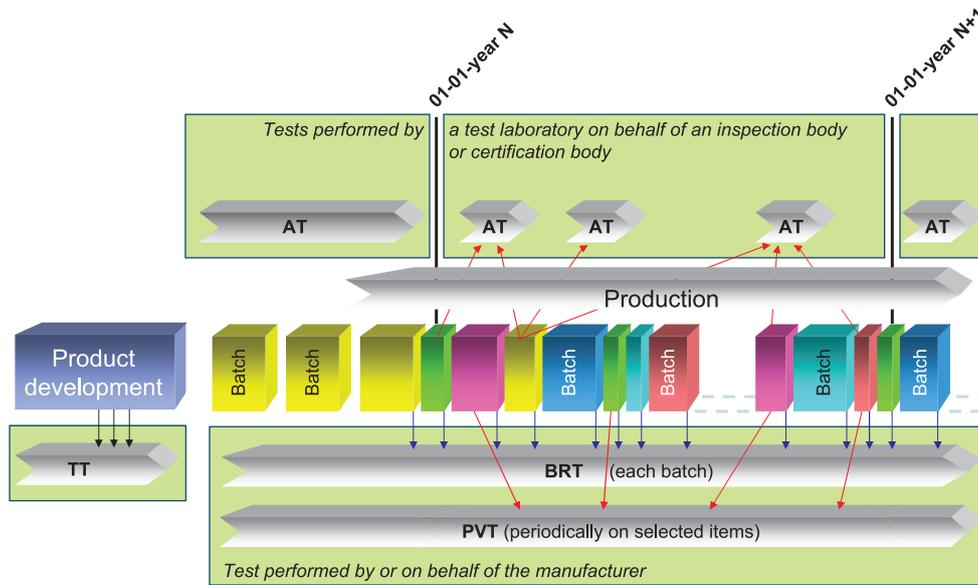
Figures 2 and 3 are intended to provide general information on the concept of testing and organisation of those tests used for the purpose of the assessment of conformity. For each type of test, i.e. type testing (TT), batch release test (BRT), process verification test (PVT), and audit test (AT), this 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**

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# 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 ISO 11300-1 and ISO 11301-1, 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.

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

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

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

ISO 11295, *Plastics piping systems used for the rehabilitation of pipelines — Classification and overview of strategic, tactical and operational activities*

ISO 11300-1, *Piping systems for rehabilitation of underground drains, sewers and water supply networks — Part 1: Polyethylene (PE) material*

ISO 11301-1, *Piping systems for rehabilitation of underground gas supply networks — Part 1: Polyethylene (PE) material*

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)*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11295, ISO 11300-1, ISO 11301-1 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 <https://www.electropedia.org/>

#### 3.1 Assessment of conformity

##### 3.1.1

##### **certification body**

impartial body, governmental or non-governmental, possessing the necessary competence and responsibility to carry out certification of conformity according to given rules of procedure and management

Note 1 to entry: A certification body should preferably operate in accordance with ISO/IEC 17021-1<sup>[4]</sup> or ISO/IEC 17065<sup>[6]</sup>.

##### 3.1.2

##### **inspection body**

body that performs inspection

Note 1 to entry: An inspection body can be an organization, or part of an organization.

Note 2 to entry: An inspection body should preferably operate in accordance with ISO/IEC 17020<sup>[3]</sup> or ISO/IEC 17021-1<sup>[4]</sup>.

[SOURCE: ISO/IEC 17020:2012,<sup>[3]</sup> 3.5, modified — Note 2 to entry added.]

##### 3.1.3

##### **testing laboratory**

laboratory which measures, tests, calibrates or otherwise determines the characteristics of the performance of *materials* (3.1.13) and products

Note 1 to entry: In the context of this document, the materials and products can be subjected to *type testing* (3.1.6), *batch release test* (3.1.7), *process verification test* (3.1.8), *audit test* (3.1.10), and *witness test* (3.1.12), as applicable.

Note 2 to entry: A testing laboratory should preferably operate in accordance with ISO/IEC 17025<sup>[5]</sup>.

##### 3.1.4

##### **quality management system**

part of a management system with regard to quality

Note 1 to entry: Requirements for quality management systems are given in ISO 9001<sup>[2]</sup>.

[SOURCE: ISO 9000:2015, 3.5.4, modified — Note 1 to entry added.]

##### 3.1.5

##### **quality plan**

document setting out the specific quality practices, resources and sequence of activities relevant to a particular product or range of products

##### 3.1.6

##### **type testing**

##### **TT**

testing performed to prove that the *material* (3.1.13), *pipe, joint* (3.1.21) or *assembly* (3.1.22) is capable of conforming to the requirements given in the relevant standard

Note 1 to entry: The type test results should remain valid until there is a change in the material or product or assembly provided that the *process verification tests* (3.1.8) are done regularly.

### 3.1.7

#### batch release test

##### BRT

test performed by or on behalf of the manufacturer on a batch of PE products, which has to be satisfactorily completed before the batch can be released

Note 1 to entry: A batch can either be a *material batch* (3.1.14) or a *product batch* (3.1.16).

### 3.1.8

#### process verification test

##### PVT

test performed by or on behalf of the manufacturer on PE products at specific intervals to confirm that the process continues to be capable of producing products which conform to the requirements given in the relevant standard

Note 1 to entry: Such tests are not required to release batches of products and are carried out as a measure of process control.

### 3.1.9

#### process verification test at the "I" stage

##### PVT-I

test performed by or on behalf of the manufacturer or installer at specific intervals during the installation process to confirm that the process as specified in the installation manual continues to be capable of producing installed products which conform to the requirements given in the relevant standard

Note 1 to entry: Such tests are not required to release batches of products and are carried out as a measure of process control.

### 3.1.10

#### audit test

##### AT

test performed by a test laboratory on behalf of an *inspection body* (3.1.2) or *certification body* (3.1.1) to confirm that the product continues to conform to the requirements given in the relevant standard

### 3.1.11

#### indirect test

##### IT

test performed by or on behalf of the manufacturer, different from that specified test for that particular characteristic, having previously verified its correlation with the specified test

### 3.1.12

#### witness test

##### WT

test accepted by an *inspection body* (3.1.2) or a *certification body* (3.1.1) for *type testing* (3.1.6) and/or *audit test* (3.1.10), which is carried out by or on behalf of the manufacturer and supervised by a representative of the inspection or certification body, competent in testing

### 3.1.13

#### material

generic term for compositions grouped by families, expressed by generic names, e.g. polypropylene, stainless steel, brass or EPDM

Note 1 to entry: Definition from European Commission, Directorate-General for Enterprise and Industry, Sub-group on Product Testing Procedures (EC, DG ENT and IND, SG PTP).

### 3.1.14

#### material batch

clearly identified quantity of a given homogeneous compound manufactured under uniform conditions and defined and identified by the compound manufacturer

**3.1.15**

**product**

pipe, fitting, or valve of a clearly identified type intended to be a part of a piping system which the manufacturer puts on the market

**3.1.16**

**product batch**

clearly identified collection of products, manufactured consecutively or continuously under the same conditions, using the same compound conforming to the same specification

Note 1 to entry: The production batch is defined and identified by the product manufacturer.

**3.1.17**

**lot**

clearly identifiable sub-division of a batch for inspection purposes

**3.1.18**

**sample**

one or more products drawn from the same production batch or *lot* ([3.1.17](#)), selected at random without regard to their quality

Note 1 to entry: The number of products in the sample is the sample size.

**3.1.19**

**group**

collection of similar products from which *samples* ([3.1.18](#)) are selected for testing purposes

**3.1.20**

**component**

product manufactured out of a specific composition compound brought to the market as part of another product or as a spare part.

Note 1 to entry: For drinking water application, components may be considered as products and be individually approved (e.g. O-ring, gasket) or they are tested as an integral part of a finished product (e.g. in a valve).

**3.1.21**

**joint**

connection between two products

**3.1.22**

**assembly**

product that can be dismantled into a set of *components* ([3.1.20](#))

EXAMPLE A test piece consisting of various products.

**3.1.23**

**sampling plan**

specification of the type of sampling to be used combined with the operational specification of the entities or increments to be taken, the *samples* ([3.1.18](#)) to be constituted and the measurements or tests to be made

EXAMPLE A specific plan which indicates the number of units of products or assemblies to be inspected.

**3.1.24**

**product type**

generic description of a product

EXAMPLE A pipe or fitting or valve or their main parts, of the same design, from a particular compound.

**3.1.25**

**cavity**

space within a mould to be filled to form the moulded product

EXAMPLE That part of an injection mould which gives the form to the injection-moulded product.