PD ISO/TS 23818-2:2021



BSI Standards Publication

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

Part 2: Resin-fibre composite (RFC) material

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# National foreword

This Published Document is the UK implementation of ISO/TS 23818-2:2021.

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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TECHNICAL SPECIFICATION

**ISO/TS 23818-2**

First edition
2021-08-06

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

## Part 2: Resin-fibre composite (RFC) material

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

*Partie 2: Matériau composite résine-fibres (RFC)*

Reference number
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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
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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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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*.

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.

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


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# 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 pipe lining systems of distinct materials are applicable:

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

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

— ISO/TS 23818-3, *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.

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**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<br>ISO 11296-3<br>ISO 11296-7 | ISO 11297-2<br>ISO 11297-3 | ISO 11298-2<br>ISO 11298-3 | ISO 11299-2<br>ISO 11299-3 |
| | | TRENCHLESS REPLACEMENT USING PIPE BURSTING, PIPE EXTRACTION, HORIZONTAL DRILLING AND IMPACT MOLING | ISO 21225-1<br>ISO 21225-2 | ISO 21225-1<br>ISO 21225-2 | ISO 21225-1<br>ISO 21225-2 | ISO 21225-1<br>ISO 21225-2 |
| ISO/TS 23818-2 | RFC | LINING WITH CURED-IN-PLACE PIPES (CIPP) | ISO 11296-4 | ISO 11297-4 | ISO 11298-4 | |
| ISO/TS 23818-3 | PVC-U | LINING WITH CLOSE-FIT PIPES AND SPIRALLY WOUND PIPES | ISO 11296-3<br>ISO 11296-7 | | | |

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 requirement 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.


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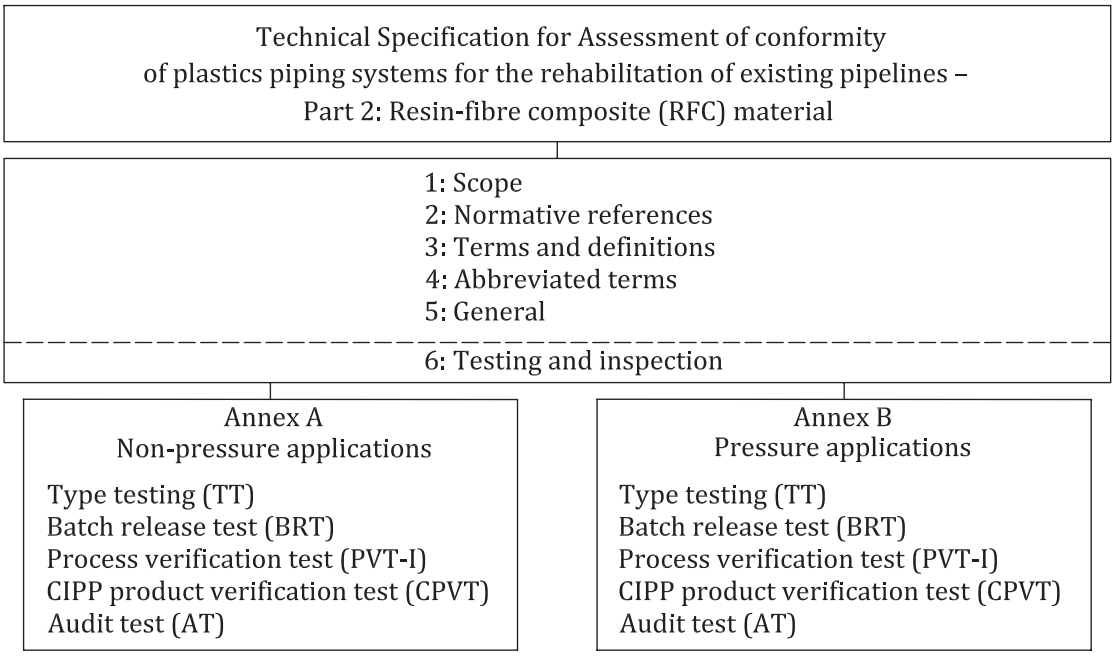



**Figure 1 — Format of the Technical Specifications for the assessment of conformity**

Figure 2 is intended to provide general information on the concept of testing and organization 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-I), CIPP product verification test (CPVT) and audit test (AT), this document details the applicable characteristics to be assessed as well as the frequency and sampling of testing.

Figure 2 also provides a typical scheme for the assessment of conformity of RFC pipes, fittings, joints or assemblies by manufacturers and/or installers, including certification.

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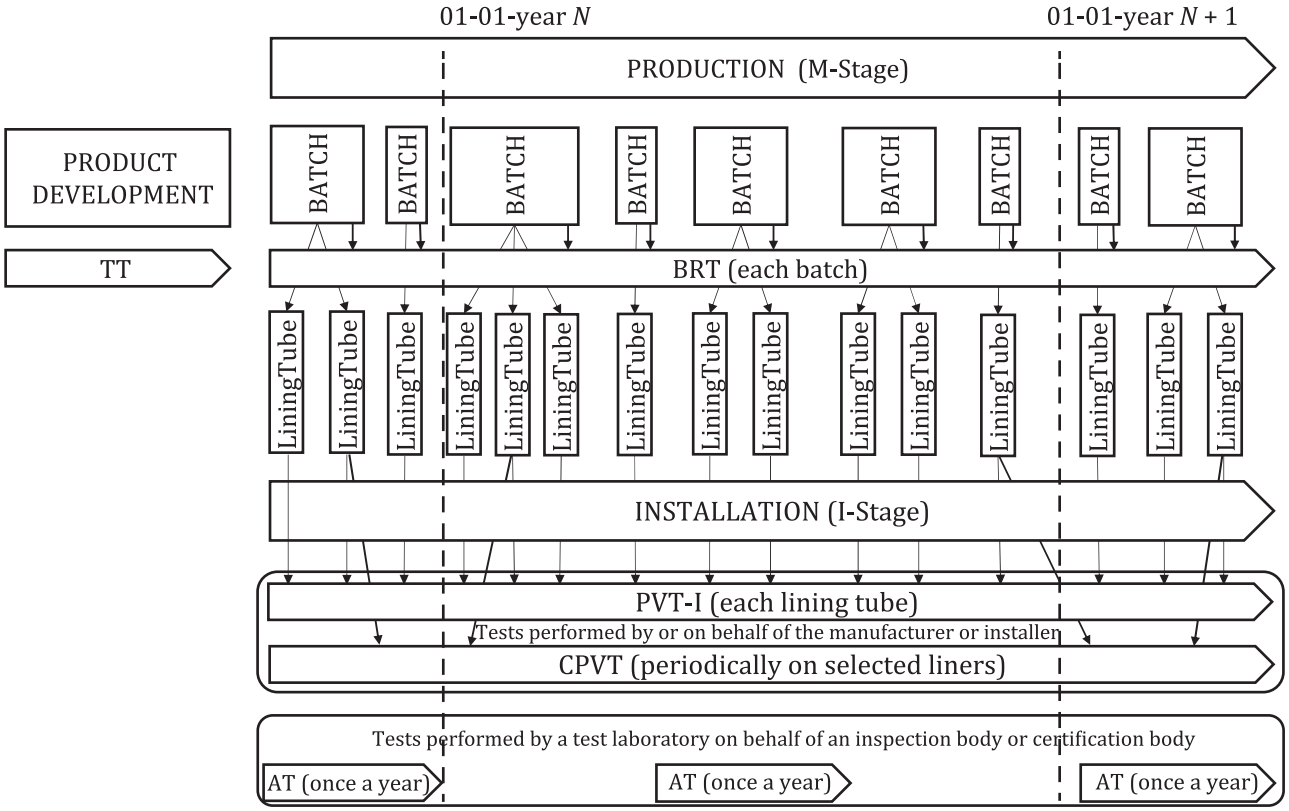



**Figure 2 — Typical scheme for the assessment of conformity by a manufacturer, including certification**


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**TECHNICAL SPECIFICATION** **ISO/TS 23818-2:2021**

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

# Part 2: Resin-fibre composite (RFC) material

## 1 Scope

This document provides a scheme for the assessment of conformity of RFC products for the rehabilitation of existing pipelines, in accordance with the applicable parts of ISO 11296, ISO 11297 and ISO 11298, 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.

It applies to cured-in-place pipe (CIPP) products only. It applies to non-pressure pipe liners, and to independent (fully structural, class A) and interactive (semi-structural, class B) pressure pipe liners, as defined in ISO 11295, which do not rely on adhesion to the existing pipeline.

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 1043-1, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics*

ISO 10928, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Methods for regression analysis and their use*

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

ISO 11296-4:2018, *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks — Part 4: Lining with cured-in-place pipes*

ISO 11296-4:2018/Amd 1:2021, *Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks — Part 4: Lining with cured-in-place pipes — Amendment 1: Updated definitions, marking requirements and procedure for alternative expression of flexural test results*

ISO 11297-4:2018, *Plastics piping systems for renovation of underground drainage and sewerage networks under pressure — Part 4: Lining with cured-in-place pipes*

ISO 11298-4:2021, *Plastics piping systems for renovation of underground water supply networks — Part 4: Lining with cured-in-place pipes*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11296-4, ISO 11297-4, ISO 11298-4 and the following apply.

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