INTERNATIONAL STANDARD

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Second edition
2018-03

Plastics piping systems for renovation of underground water supply networks —

Part 1: General

Systèmes de canalisations en plastique pour la rénovation des réseaux enterrés d'alimentation en eau —
Partie 1: Généralités

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Contents

Page

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 on 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 the following URL: 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*.

This second edition cancels and replaces the first edition (ISO 11298-1:2010), which has been technically revised. The main changes are in Clauses 2, 3.1, 3.2, 3.3, 4.2, and 8.9, and Figures 1 and 2.

A list of all parts in the ISO 11298 series, can be found on the ISO website.

Introduction

This document is a part of a System Standard for plastics piping systems of various materials used for the renovation of existing pipelines in a specified application area. System Standards for renovation deal with the following applications:

— 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* (this document);

— ISO 11299: *Plastics piping systems for renovation of underground gas supply 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".

Each of the System Standards comprises a:

— *Part 1: General* (this document)

and all applicable renovation technique family-related parts, which for water supply networks include or potentially include the following:

— *Part 2: Lining with continuous pipes*;

— *Part 3: Lining with close-fit pipes*;

— *Part 4: Lining with cured-in-place pipes*;

— *Part 5: Lining with discrete pipes*;

— *Part 6: Lining with adhesive-backed hoses*;

— *Part 10: Lining with sprayed polymeric materials*;

— *Part 11: Lining with inserted hoses*.

The requirements for any given renovation technique family are specified in Part 1, applied in conjunction with the relevant other part. For example, this document and ISO 11298-3 specify the requirements relating to lining with close-fit pipes. For complementary information, see ISO 11295. Not all technique families are pertinent to every area of application and this is reflected in the part numbers included in each System Standard.

A consistent structure of clause headings has been adopted for all parts of ISO 11298, in order to facilitate direct comparisons across renovation technique families.

Figure 1 shows the common part and clause structure and the relationship between ISO 11298 and the System Standards for other application areas.

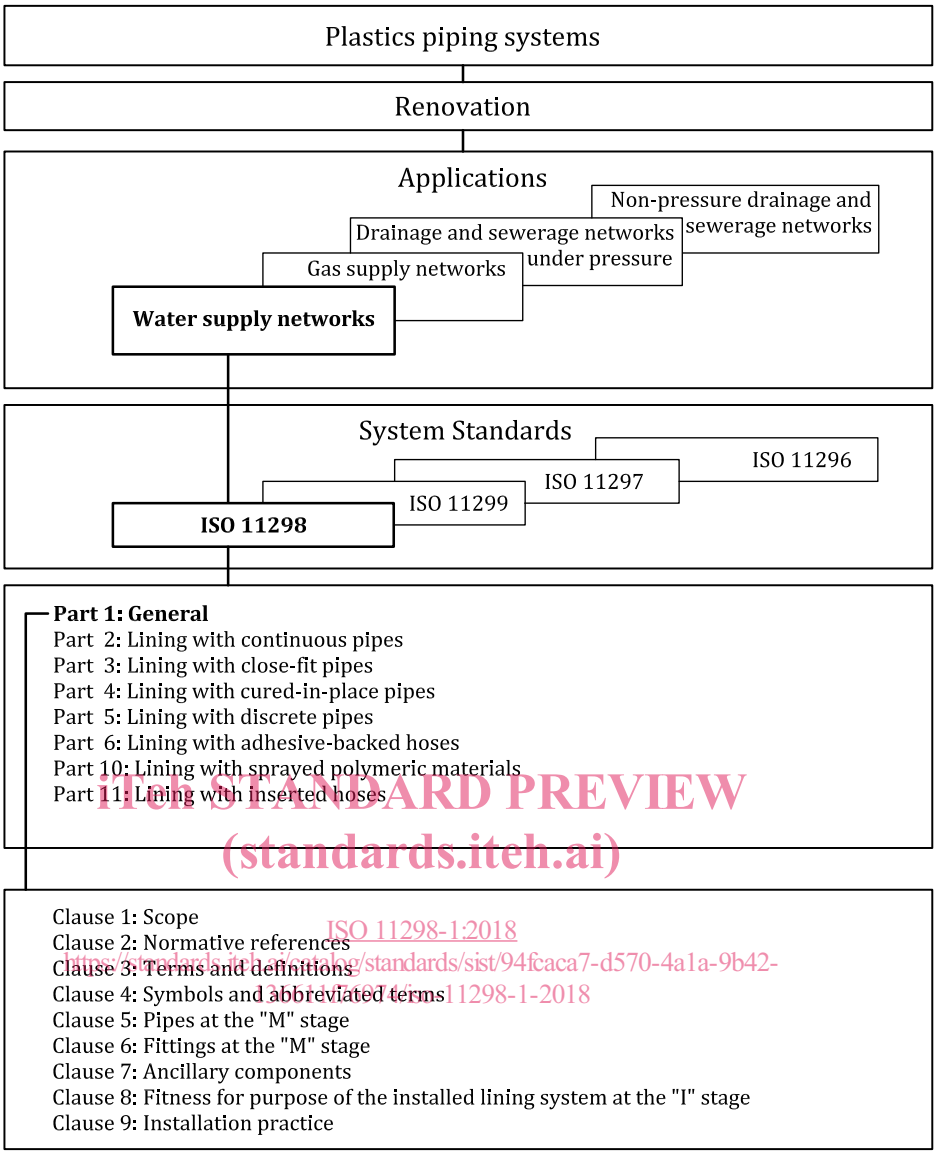

Figure 1 — Format of the renovation system standards

Plastics piping systems for renovation of underground water supply networks —

Part 1: General

1 Scope

This document specifies the requirements and test methods for plastics piping systems intended to be used for the renovation of underground water supply networks. It is applicable to pipes and fittings, as manufactured, as well as to the installed lining system. It is not applicable to the existing pipeline or any non-structural sprayed coatings or annular filler.

This document gives the general requirements common to all relevant renovation techniques.

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 4633, *Rubber seals — Joint rings for water supply, drainage and sewerage pipelines — Specification for materials*

EN 681-1, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

EN 681-2, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 2: Thermoplastic elastomers*

EN 681-3, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 3: Cellular materials of vulcanized rubber*

EN 681-4, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 4: Cast polyurethane sealing elements*

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:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1 General

3.1.1
pipeline system
interconnecting pipe network for the conveyance of fluids

3.1.2
rehabilitation
measures for restoring or upgrading the performance of existing systems, including renovation, repair and replacement

3.1.3
renovation
work incorporating all or part of the original fabric of the pipeline, by means of which its current performance is improved

3.1.4
replacement
construction of a new pipeline, on or off the line of an existing pipeline, where the function of the new pipeline system incorporates that of the old

3.1.5
maintenance
routine work undertaken to ensure the existing performance of an asset

3.1.6
repair
rectification of local damage

3.1.7
lining pipe
pipe inserted for renovation purposes

3.1.8
liner
lining pipe after installation

3.1.9
lining system
lining pipe and all relevant fittings for insertion into an existing pipeline for the purposes of renovation

3.1.10
renovated pipeline system
existing pipeline system plus the installed lining system used to renovate it, as well as any grout or other annular filling material used

3.1.11
characteristic
property, dimension or other feature of a material or component

3.1.12
declared value
limiting value of a characteristic declared in advance by the lining system supplier, which becomes the requirement for the purposes of assessment of conformity

3.1.13
annular filler
material for grouting annular space between existing pipeline and lining system

3.1.14
grouting
process of filling voids around the lining system

3.1.15
system test pressure
STP
hydrostatic pressure applied to the installed pipeline system in order to ensure its integrity and leaktightness

3.1.16
simulated installation
installation of a lining system into a simulated host pipeline, using representative equipment and processes, to provide samples for testing which are representative of an actual installation

3.1.17
simulated host pipeline
section of pipeline, which is not part of an operational network, but which replicates the environment of an operational network

3.1.18
technique family
group of renovation techniques which are considered to have common characteristics for standardization purposes

3.1.19
independent pressure pipe liner
liner capable on its own of resisting without failure all applicable internal loads throughout its design life

3.1.20
interactive pressure pipe liner
liner which relies on the existing pipeline for some measure of radial support in order to resist without failure all applicable internal loads throughout its design life

3.1.21
fully structural renovation
use of an independent pressure pipe liner, which is capable of resisting all external loads irrespective of the condition of the existing pipeline

3.1.22
semi-structural renovation
use of an interactive pressure pipe liner which is capable of long-term hole and gap spanning at operational pressure

3.1.23
type testing
testing performed to prove that a material, component, joint or assembly is capable of conforming to the requirements given in the applicable standard

3.1.24
CCTV
system comprised of cameras, recorders, interconnections and displays that are used to inspect pipelines

3.2 Techniques

The various techniques for renovation of underground water supply networks under pressure, within the scope of pipeline rehabilitation techniques generally, are shown schematically in Figure 2. For definitions of standardized renovation techniques shown in Figure 2, but outside the scope of this document, see ISO 11295.