TECHNICAL SPECIFICATION

ISO/TS 15877-7

Third edition
2018-11

Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) —

Part 7: Guidance for the assessment of conformity

Systèmes de canalisations en plastique pour les installations d'eau chaude et froide — Poly(chlorure de vinyle) chloré (PVC-C) —

Partie 7: Guide pour l'évaluation de la conformité

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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 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 the European Committee for Standardization (CEN) Technical Committee CEN/TC 155, *Plastics piping systems and ducting systems*, in collaboration with ISO Technical Committee TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 2, *Plastics pipes and fittings for water supplies*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO/TS 15877-7:2009), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Addition of new definitions of the terms “material”, compound” and “material grade”;

— Revision of 6.2 “Type testing (TT)” with a special focus on Table 4.

A list of all parts in the ISO 15877 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

This document can be used to support elaboration of national third party certification procedures for products conforming to the applicable part(s) of ISO 15877.

This document is a part of a System Standard for plastics piping systems of a particular material for a specified application. There are a number of such System Standards.

At the date of publication of this document, System Standards for piping systems of other plastics materials used for the same application are the following:

— ISO 15874, *Plastics piping systems for hot and cold water installations — Polypropylene (PP)*

— ISO 15875, *Plastics piping systems for hot and cold water installations — Crosslinked Polyethylene (PE-X)*

— ISO 15876, *Plastics piping systems for hot and cold water installations — Polybutene (PB)*

— ISO 21003, *Multilayer piping systems for hot and cold water installations inside buildings*

— ISO 22391, *Plastics piping systems for hot and cold water installations — Polyethylene of raised temperature resistance (PE-RT)*

They are supported by separate standards on test methods to which references are made throughout the System Standard.

The System Standards are consistent with general standards on functional requirements and on recommended practice for installation.

Figures 1 and 2 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 materials, compounds, pipes, fittings, valves, joints or assemblies by product manufacturers is given in Figure 1.

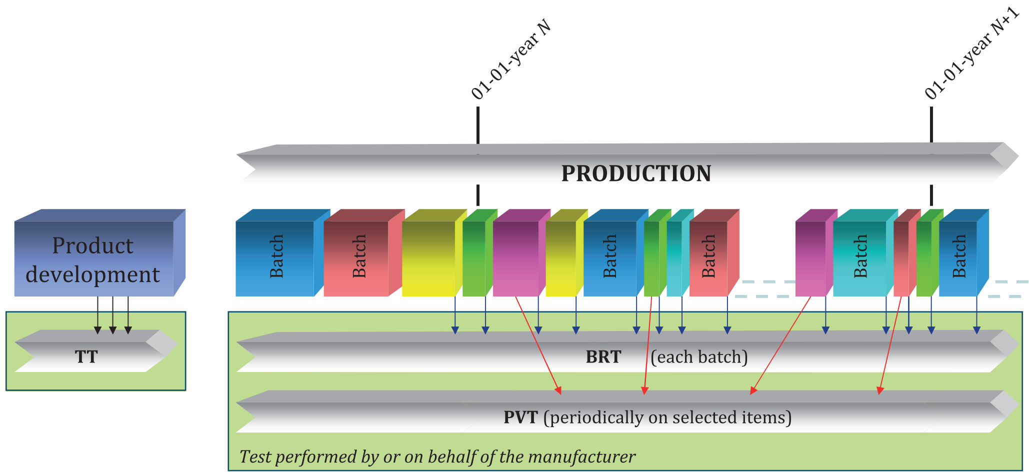

Figure 1 — Typical scheme for the assessment of conformity by a product manufacturer

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

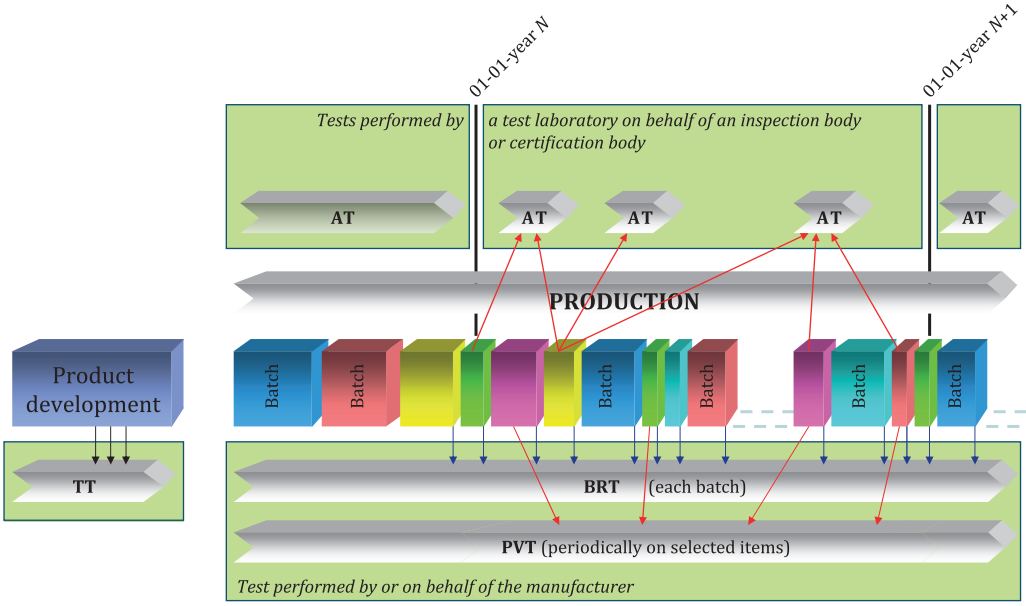

Figure 2 — Typical scheme for the assessment of conformity by a product manufacturer, including certification

Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) —

Part 7: Guidance for the assessment of conformity

1 Scope

This document gives requirements and guidance for the assessment of conformity of materials, products, and assemblies in accordance with the applicable part(s) of ISO 15877 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, a basic test matrix is given in Annex A.

In conjunction with the other parts of ISO 15877 (see Foreword), this document is applicable to Chlorinated poly(vinyl chloride) (PVC-C) piping systems intended to be used for hot and cold water installations within buildings for the conveyance of water, whether or not intended for human consumption (domestic systems) and for heating systems, under design pressures and temperatures appropriate to the class of application (see ISO 15877-1:2009, Table 1).

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 15877-1:2009, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 1: General*

ISO 15877-2:2009, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 2: Pipes*

ISO 15877-3:2009, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 3: Fittings*

ISO 15877-5:2009, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 5: Fitness for purpose of the system*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15877-1 and ISO 15877-3 and the following 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
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 is preferably compliant with ISO/IEC 17065[2].

3.2
inspection body
body that performs inspection

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

[SOURCE: ISO/IEC 17020:2012[3], 3.5]

Note 2 to entry: An inspection body is preferably compliant with ISO/IEC 17020[3].

3.3
testing laboratory
laboratory which measures, tests, calibrates or otherwise determines the characteristics of the performance of materials and products

Note 1 to entry: A testing laboratory is preferably compliant with ISO/IEC 17025[4].

3.4
quality management system
part of a management system with regard to quality

[SOURCE: ISO 9000:2015, 3.5.4]

Note 1 to entry: Requirements for quality management systems are given in ISO 9001[6].

3.5
quality plan
document setting out the specific quality practices, resources and sequence of activities relevant to a particular product or range of products

3.6
type testing
TT
testing performed to prove that the *compound* (3.13), *component* (3.21), *product* (3.16), *joint* (3.22) or *assembly* (3.23) is capable of conforming to the requirements given in the relevant standard

Note 1 to entry: The type test results remain valid until there is a change in the *compound* (3.13) or *product* (3.16) or *assembly* (3.23) provided that the process verification tests are done regularly.

3.7
batch release test
BRT
test performed by or on behalf of the manufacturer on a batch of *compound* (3.13), *components* (3.21) or *products* (3.16), which has to be satisfactorily completed before the batch can be released

3.8
process verification test
PVT
test performed by or on behalf of the product manufacturer on *compounds* (3.13), *components* (3.21), *products* (3.16) or joints (3.22) at specific intervals to confirm that the process continues to be capable of producing *components* (3.21) and *products* (3.16) which conform to the requirements given in the relevant standard

Note 1 to entry: Such tests are not required to release batches of *materials* (3.12), *compound* (3.13), *components* (3.21) or *products* (3.16) and are carried out as a measure of process control.

3.9
audit test
AT
test performed by a test laboratory on behalf of an *inspection body* (3.2) or *certification body* (3.1) to confirm that the material, *compound* (3.13), *components* (3.21), *product* (3.16), *joint* (3.22) or *assembly* (3.23) continues to conform to the requirements given in the relevant standard and to provide information to assess the effectiveness of the *quality management system* (3.4)

3.10
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

3.11
witness test
WT
test accepted by an inspection or a *certification body* (3.1) for *type testing* (3.6) and/or audit testing, which is carried out by or on behalf of the manufacturer and supervised by a representative of the inspection or *certification body* (3.1), qualified in testing

3.12
material
composition grouped by specific families, expressed by generic names used in various standards, e.g. PP-H, PB-R, PE-RT Type II, PE-X a, PVC-C

3.13
compound
clearly defined homogenous mixture of the polymer with additives, i.e. antioxidants, pigments, stabilizers and others, at a dosage level necessary for the processing and the intended use of the final *product* (3.16)

3.14
material grade
material (3.12) with a defined specification from a material manufacturer

3.15
batch of material grade
clearly identified quantity of a given homogeneous *material* (3.12) or *compound* (3.13) manufactured under uniform conditions and defined and identified by the material/compound manufacturer

3.16
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

3.17
product batch
clearly identified collection of units or *products* (3.16), manufactured consecutively or continuously under the same conditions, using the same *compounds* (3.13) conforming to the same specifications

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

3.18
lot
clearly identifiable sub-division of a batch for inspection purposes

3.19
sample
one or more units or *products* (3.16) drawn from the same production batch or *lot* (3.18), selected at random without regard to their quality

Note 1 to entry: The number of *products* (3.16) in the sample is the sample size.

3.20
group
collection of similar *components* (3.21) or *products* (3.16) from which *samples* (3.19) are selected for testing purposes

3.21
component
product (3.16) manufactured out of a specific *compound* (3.13), brought to the market as part of another *product* (3.16) or as a spare part

Note 1 to entry: For drinking water application, components may be considered as *products* (3.16) and be individually approved (e.g. o-ring, gasket) or they are tested as integral part of a *product* (3.16) (e.g. in a valve).

3.22
joint
connection between two or more *products* (3.16)

3.23
assembly
assembled product
assembled product using two or more parts

3.24
sampling plan
specific plan which defines the test and the number of units or *products* (3.16) or *assemblies* (3.23) to be inspected

3.25
product type
generic description of a *product* (3.16)

EXAMPLE A pipe or fitting or valve or their main parts, of the same design, from a particular *compound* (3.13).

3.26
cavity
<moulding> 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.

4 Abbreviated terms

To avoid misunderstanding, the abbreviations in this clause are defined as being the same in each language. For the same reason, the terms are given in the three languages, English, French and German.

	EN	FR	DE
AT	audit test	essai d'audit	Überwachungsprüfung
BRT	batch release test	essai de libération de campagne de fabrication	Freigabeprüfung einer Charge
IT	indirect test	essai indirect	indirekte Prüfung
PVT	process verification test	essai de vérification du procédé de fabrication	Prozessüberprüfung
TT	type test	essai de type	Typprüfung
WT	witness testing	essai témoin	Prüfung unter Aufsicht

5 General

Compounds, products and assemblies shall conform to the requirements given in ISO 15877 (all parts).

Products and assemblies shall be produced by the manufacturer under a quality management system which includes a quality plan.

For the effect on water quality, attention is drawn to the requirements of national regulations.

6 Testing and inspection

6.1 Grouping

6.1.1 General

For the purposes of this document, the groups specified in 6.1.2 to 6.1.4 apply.

6.1.2 Pressure groups

Two pressure groups are defined, as given in Table 1.

Table 1 — Pressure groups

Pressure group	Operating pressure, p_{op} bar
1	4; 6
2	8; 10

6.1.3 Size groups

Two size groups are defined for pipes and fittings, as given in Table 2.

Table 2 — Size groups

Size group	Nominal diameter, d_n mm
1	$10 \leq d_n \leq 63$
2	$63 < d_n \leq 160$