PD CEN/TS 1555-7:2013

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Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE)

Part 7: Guidance for the assessment of conformity

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National foreword

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The UK participation in its preparation was entrusted by Technical Committee PRI/88, Plastics piping systems, to Subcommittee PRI/88/2, Plastics piping for pressure applications.

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

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English Version

Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 7: Guidance for the assessment of conformity

Systèmes de canalisations en plastique pour la distribution de combustibles gazeux - Polyéthylène (PE) - Partie 7: Guide pour l'évaluation de la conformité

Kunststoff-Rohrleitungssysteme für die Gasversorgung - Polyethylen (PE) - Teil 7 : Empfehlungen für die Beurteilung der Konformität

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Foreword

This document (CEN/TS 1555-7:2013) has been prepared by Technical Committee CEN/TC 155 “Plastics piping systems and ducting systems”, the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TS 1555-7:2003.

EN 1555 is composed of the following parts:

— EN 1555-1, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*;

— EN 1555-2, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes*;

— EN 1555-3, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings*;

— EN 1555-4, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 4: Valves*;

— EN 1555-5, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system*;

— CEN/TS 1555-7, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 7: Guidance for the assessment of conformity* (the present Technical Specification).

This issue of CEN/TS 1555-7 takes into account the technical changes made in the revision of EN 1555-1, -2, -3, -5 and -4, published in 2010 and respectively in 2011. Guidance for the assessment of conformity given in this document has been revised to reflect the changes made to test methods and requirements given in EN 1555-1, -2, -3, -4 and -5. Two new types of pipe have been introduced, i.e. coextruded pipes and peelalable layer pipes. The sampling procedures and sampling frequencies for these types of pipes have been introduced into the tables for TT, BRT, PVT and AT tests for pipes.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

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 part of EN 1555 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 compounds, pipes, fittings, valves, joints or assemblies by manufacturers is given in Figure 1.

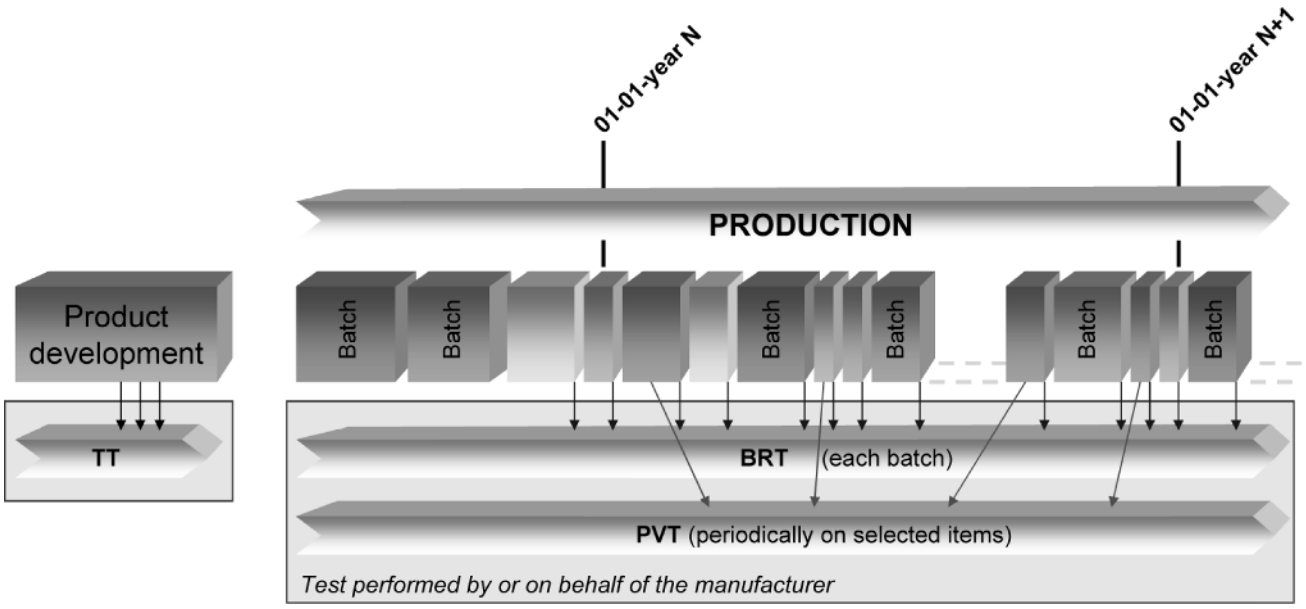

Figure 1 — Typical scheme for the assessment of conformity by a manufacturer

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

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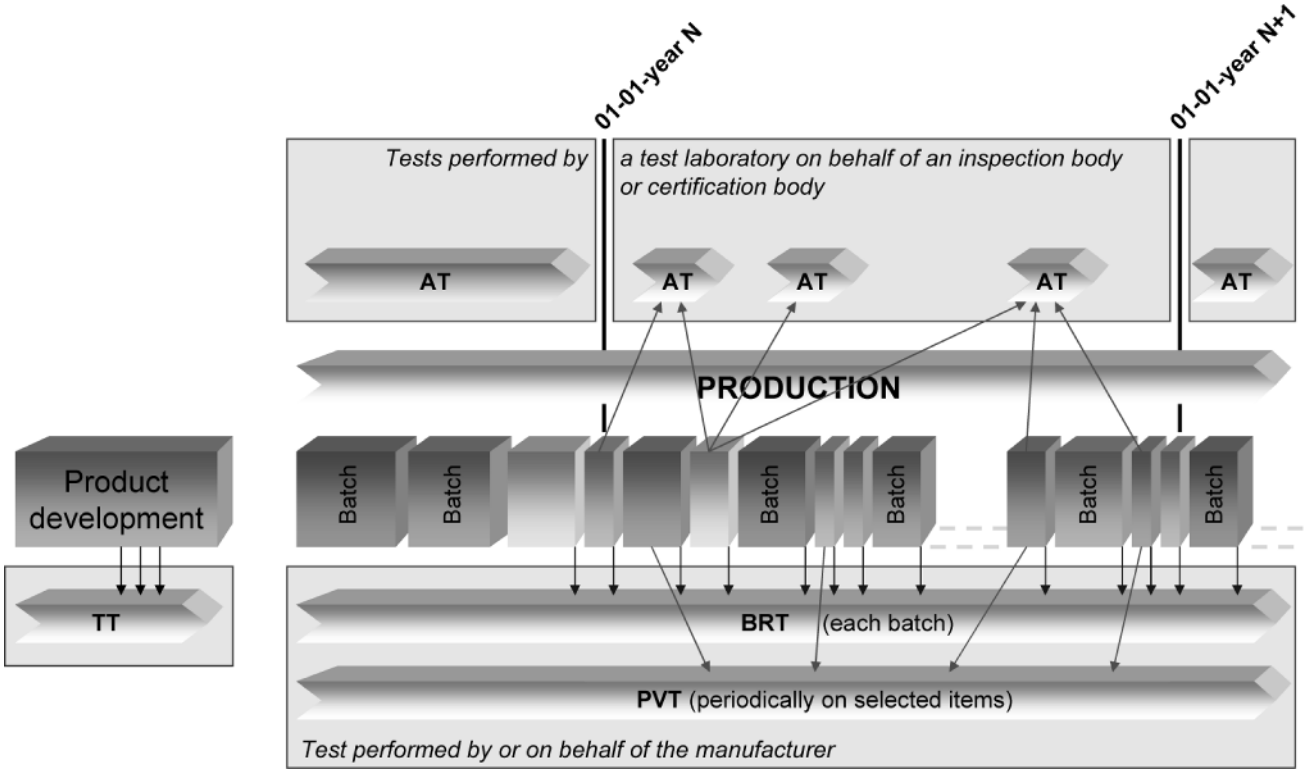

Figure 2 — Typical scheme for the assessment of conformity by a manufacturer, including certification

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1 Scope

This Technical Specification gives guidance for the assessment of conformity of compounds, products, joints and assemblies in accordance with the applicable part(s) of EN 1555 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 is recommended that the quality management system conforms to or is no less stringent than the relevant requirements to EN ISO 9001 [2].

NOTE 1 If certification is involved, the certification and inspection body is preferably compliant with EN 45011 [3], EN 45012 [4] or EN ISO/IEC 17020 [5], as applicable.

In conjunction with Parts 1 to 5 of EN 1555 (see Foreword), this Technical Specification is applicable to polyethylene (PE) plastics piping systems for the supply of gaseous fuels. It is applicable to PE pipes, fittings, and valves, their joints and to joints with components of other materials intended to be used under the following conditions:

a) a maximum operating pressure, MOP, up to and including 10 bar[1)];

b) an operating temperature of 20 °C as reference temperature.

NOTE 2 For other operating temperatures, derating coefficients can be used; see EN 1555-5.

For mechanical fittings conforming to ISO 10838-1 [6], ISO 10838-2 [7] or ISO 10838-3 [8], as applicable, guidance for assessment of conformity is not given in this part of EN 1555. When requested, a quality plan based on the tests mentioned in ISO 10838-1 [6], ISO 10838-2 [7] or ISO 10838-3 [8], as applicable, should be set up in agreement between user and manufacturer.

EN 1555 covers a range of maximum operating pressures and gives requirements concerning colours and additives.

NOTE 3 It is the responsibility of the purchaser or specifier to make the appropriate selections from these aspects, taking into account their particular requirements and any relevant national regulations and installation practices or codes.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1555-1:2010, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*

EN 1555-2:2010, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes*

EN 1555-3:2010, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings*

EN 1555-4:2011, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 4: Valves*

EN 1555-5:2010, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system*

1) 1 bar = 0,1 MPa.

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

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

EN 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 13477)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions given in EN 1555-1:2010, EN 1555-2:2010, EN 1555-3:2010, EN 1555-4:2011 and EN 1555-5:2010 and the following apply.

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 EN 45011 [3].

3.2
inspection body
body that performs inspection

Note 1 to entry: A body can be an organisation or part of an organisation.

Note 2 to entry: An inspection body is accredited to EN ISO/IEC 17020 [5].

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: In the context of this part of EN 1555, the materials and products can be subjected to type testing, batch release testing, process verification testing, audit testing, and witness testing, as applicable.

Note 2 to entry: A testing laboratory is preferably compliant with EN ISO/IEC 17025[9].

3.4
quality management system
management system to direct and control an organisation with regard to quality

Note 1 to entry: Requirements for quality management systems are given in EN ISO 9001 [2].

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 material, product, joint or assembly 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 material or product or assembly provided that the process verification tests are done regularly.

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3.7
batch release test
BRT
test performed by or on behalf of the manufacturer on a batch of compound or products, which needs to be satisfactorily completed before the batch can be released

3.8
process verification test
PVT
test performed by or on behalf of the manufacturer on compound or products or joints or assemblies at specific intervals to confirm that type tests originally performed on the compound or products or joints or assemblies continue to be valid and 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 carried out as a measure of process control and are not related to release of batches of compound or products.

3.9
audit test
AT
test performed by a test laboratory on behalf of an inspection body or certification body to confirm that the compound, product, joint or assembly continues to conform to the requirements given in the relevant standard and to provide information to assess the effectiveness of the quality management system

3.10
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 for type testing 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, qualified in testing

3.12
material
composition 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).

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

3.14
material batch
clearly identified quantity of a given homogeneous compound manufactured continuously under uniform conditions and defined and identified by the compound manufacturer

3.15
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

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3.16
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 product batch is defined and identified by the product manufacturer.

3.17
lot
clearly identifiable sub-division of a batch for inspection purposes

3.18
sample
one or more products drawn from the same production batch or lot, selected at random without regard to their quality

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

Note 2 to entry: The number of test pieces required for each test are taken from the sample. This information is given in this document, in the product standard, or in the relevant test method standard.

3.19
group
collection of similar products from which samples are selected for testing purposes

3.20
component
product manufactured out of a specific composition or compound, brought to the market as part of another product or as a spare part

Note 1 to entry: Components are considered as products and are individually approved (e.g. o-rings and gaskets), or they are tested as integral part of a finished product (e.g. in a valve).

3.21
joint
connection between two or more products

3.22
assembled product
assembled final product using two or more single parts

3.23
assembly
unit of two or more products assembled for testing purposes

3.24
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 to be constituted and the measurements to be made

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

3.25
product type
generic description of a product

EXAMPLE A pipe or fitting or valve or their main parts, of the same design.

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3.26
body type
generic description of a body

EXAMPLE A valve body of a particular design, which can have different end connections.

3.27
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.

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.

AT en : audit test
fr : essai d'audit
de : Überwachungsprüfung

BRT en : batch release test
fr : essai de libération de campagne de fabrication
de : Freigabeprüfung einer Charge

IT en : indirect test
fr : essai indirect
de : indirekte Prüfung

PVT en : process verification test
fr : essai de vérification du procédé de fabrication
de : Prozessüberprüfung

TT en : type test
fr : essai de type
de : Typprüfung

WT en : witness test
fr : essai témoin
de : Prüfung unter Aufsicht

5 General

5.1 Compounds, products, joints and assemblies shall conform to the requirements given in EN 1555-1, EN 1555-2, EN 1555-3, EN 1555-4, and EN 1555-5.

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

6 Testing and inspection

6.1 Grouping

6.1.1 General

For the purposes of this Technical Specification, the groups specified in 6.1.2 and 6.1.3 apply.

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