Revision of answer to the mandate M/131

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Mandate number	M/131	-
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Commission's acceptance	Pending	
Correction of editorial mistakes in 155-N3677	This document	2011-12-15

List of changes:

Clause of the original document	Reason for the change (short description)	Supporting information (if relevant)
0.4)	The following NOTES are added: *NOTE 1: The term "FITTING" includes the term "JOINT" as meant by mandate M 131* *NOTE 2: The family (1) "PIPING KITS/SYSTEMS" is not addressed.*	For the standards of CEN/TC 155 the term "FITTING" includes the term "JOINT". The way how products are brought to the market does not correspond to the interpretations as given in Guidance Paper C for "KITS".
0.6)	The following modification is proposed: *The standards listed under point B, C and D will contain normative reference to the relevant reaction to fire standards prepared by CEN/TC 127.*	The experts are aware of the existence in at least one member state provisions applicable to the reaction to fire, therefore for all the standards listed under A, B, C and D reaction to fire is now relevant..
A.1	Updating of WI 00155589 numbering and dates of availability has been made. The number of the standard ((EN 15012) is also given	First answer to the mandate having been issued in 2000, the WI and dates had to be updated
A.1(i)	The following new title is proposed: Plastics piping systems — Non	It reflects more precisely the content of the standard.

	pressure soil and waste discharge piping components within the building structure — Requirements and test/assessment methods for pipes and fittings.	
A.1(ii)	The following new scope is proposed: This European Standard specifies requirements for non-pressure thermoplastics pipes and fittings for soil and waste applications. It gives the associated test/assessment methods. This standard does not cover adhesives, joint sealings and gaskets.	It reflects more precisely the content of the standard.
A.1 (iii)	The following intended use is proposed: Soil and waste discharge applications: — inside the building (application area code "B"); — buried in ground within the building structure (application area code "BD") and with a diameter greater than or equal to 75 mm.	It reflects more precisely the content of the standard.
A.1(iv) Family (2) Pipes Family (4) Fittings, adhesives, joints, joints sealings and gaskets.	The following modifications are proposed: - Maximum load for admissible deformation is now considered relevant, but only for buried in ground applications) - Maximum load for admissible deformation is now considered relevant , but only for buried in ground applications)	 This introduction results from the modification of intended use [see A1 (iii)] This introduction results from the modification of intended use [see A1 (iii)]
A.1(v) Family (2) Pipes Family (4) Fittings, adhesives, joints, joints sealings and gaskets.	The following durability verification is proposed: - Durability of tightness (gas and liquid): - Vicat softening point (for PVC ABS, PVC/san and PVC-C) - MFR and Oxidation Induction Time (PE and PP) - Durability of tightness (gas and liquid): - Vicat softening point (for PVC ABS, PVC/san and PVC-C) - MFR and Oxidation Induction Time (PE and PP)	The proposed tests fully cover the durability issue.

Family (2) Pipes and Family (4) Fittings, adhesives, joints, joints sealings and gaskets.	- Durability of tightness (gas and liquid): - Cycling test with elevated temperature of pipes and fittings	
A.2.1	The list of supporting standards is updated by adding the following standards: - EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item* - EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item* -EN ISO 9969, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969:2007)* - ISO 13254, *Thermoplastics piping systems for non-pressure applications — Test method for watertightness* - ISO 13255*, Thermoplastics piping systems for soil and waste discharge inside buildings — Test method for airtightness of joints* - ISO 13966, *Thermoplastics pipes and fittings — Nominal ring stiffnesses* <u>The following supporting standards are deleted:</u> - EN 1053*, Plastics piping systems — Thermoplastics piping systems for non-pressure applications — Test method for watertightness* - EN 1054*, Plastics piping systems — Thermoplastics piping systems for soil and waste discharge — Test method for airtightness of joints*	First answer to the mandate having been issued in 2000, the list of supporting standards needed to be updated. - ISO 13254 is replacing EN 1053 - ISO 13255 is replacing EN 1054
A.2.2	The list of supporting standards is updated by adding the following standards: - EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item* - EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item* - ISO 13254, *Thermoplastics piping systems for non-pressure applications — Test method for*	First answer to the mandate having been issued in 2000, the list of supporting standards needed to be updated. - ISO 13254 is replacing EN 1053 - ISO 13255 is replacing EN 1054

	watertightness - ISO 13255*, Thermoplastics piping systems for soil and waste discharge inside buildings — Test method for airtightness of joints* - ISO 13966, *Thermoplastics pipes and fittings — Nominal ring stiffness* - EN ISO 13967, Thermoplastics fittings — Determination of ring stiffness <u>The following supporting standards are deleted:</u> - EN 1053*, Plastics piping systems — Thermoplastics piping systems for non-pressure applications — Test method for watertightness* - EN 1054*, Plastics piping systems — Thermoplastics piping systems for soil and waste discharge — Test method for airtightness of joints*	
A 2.3	The list of supporting standards is updated by adding the following standards: - ISO 2507-1, *Thermoplastics pipes and fittings — VICAT softening temperature — Part 1: General test method* - ISO 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)* - ISO 13257, *Thermoplastics piping systems for non pressure applications — Test method for resistance to elevated temperature cycling* - EN ISO 1133, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics* <u>The following supporting standards are deleted:</u> - EN 1055, *Plastics piping systems — Thermoplastics piping systems for soil and waste discharge inside buildings — Test method for resistance to elevated temperature cycling*	First answer to the mandate having been issued in 2000, the list of supporting standards needed to be updated. - ISO 2507-1 is replacing EN 727 - ISO 11357-6 is replacing EN 728 - ISO 13257 is replacing EN 1055 - EN ISO 1133 is replacing ISO 1133
A.3.1.2.	The following new heading	See A.1(ii)

	Is proposed: A.3.1.2 (4) Fittings (see A.1(ii))	
A.3.2	The following modification is proposed: The deletion of the existing text replaced by 'None'	 The former wording was not clear enough.
A.3.10	The following wording replaces the existing text: 'None'	The reference to classification D was not relevant.
B.1	Updating of WI 00155590 numbering and dates of availability has been made. The number of the standard (EN 15013) is also given	First answer to the mandate having been issued in 2000, the WI and dates had to be updated
B.1 (i)	The following new title is proposed: Plastics piping systems - Non-pressure drainage and sewerage systems buried in ground - Requirements and test/assessment methods for pipes and fittings	It reflects more precisely the content of the standard.
B.1 (ii)	The following new scope is proposed: This European Standard specifies requirements for non-pressure plastics pipes and fittings for drainage and sewerage applications. It gives the associated test/assessment methods This pipework is used both underground in the U area (more than 1 m from the building structure) and underground in the D area (connected to the soil and waste discharge system and buried within or under the building structure). The standard does not apply to perforated engineering drainage pipes nor to highway drainage pipes, perforated or non-perforated.	It reflects more precisely the content of the standard
B.1 (iii)	The following intended use is proposed: Conveyance of non-pressure underground drainage and sewerage.	It reflects more precisely the content of the standard
B.1(iv) Family (2) Pipes	The following essential characteristic is added: - *Reaction to fire*	 Reaction to fire added as requirements exist in at least

		one MS
Family (4) Fittings, adhesives, joints, joints sealings and gaskets.	The following essential characteristic is added: *- Reaction to fire* - *Maximum load for admissible deformation*	Reaction to fire added as requirements exist in at least one MS This essential characteristic is relevant for fittings
B.1 (v) Family (2) Pipes	The following durability verification is proposed: Durability of maximum load for admissible deformation related to material and wall construction: - long term strain resistance - ring flexibility - long term creep ring stiffness Durability of tightness after elevated temperature cycling test of pipes: - cycling test at elevated temperature.	Not specifically detailed in the original answer.
Family (4) Fittings, adhesives, joints, joints sealings and gaskets.	Durability of tightness after elevated temperature cycling test of fittings: - cycling test at elevated temperature.	
B 2.1	The list of supporting standards is updated by adding the following standards: EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests* EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item* EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item* ISO 13966, Thermoplastics pipes and fittings — Nominal ring stiffnesses EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints* *EN ISO 9967, Plastics pipes — Determination of creep ratio*	First answer to the mandate having been issued in 2000, the WI and dates had to be updated

	(ISO 9967:1994) <u>The following supporting standards are deleted:</u> EN 1119, *Plastics piping systems — Joints for glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods for leaktightness and resistance to damage of flexible and reducedarticulation joints* EN 1228, *Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes — Determination of initial specific ring stiffness* EN 1448, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) components — Test methods to prove the design of rigid locked socket-and-spigot joints with elastomeric seals* EN 1449, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) components — Test methods to prove the design of cemented socket-and-spigot joints* EN 1450, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) components — Test methods to prove the design of bolted flange joints*	
B 2.2	The list of supporting standards is updated by adding the following standards: EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests* EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item* EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item* ISO 13966, *Thermoplastics pipes and fittings — Nominal ring stiffnesses* EN ISO 13967, *Thermoplastics fittings — Determination of ring stiffness* EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and*	

	joints	
B 2.3	The list of supporting standards is updated by adding the following standards: *EN ISO 9967, Plastics pipes — Determination of creep ratio (ISO 9967:1994)* EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints* EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure —Part 1: General method (ISO 1167-1:2006)* EN ISO 13968, *Plastics piping and ducting systems - Thermoplastics pipes - Determination of ring flexibility (ISO 13968:2008)* EN 1055, *Plastics piping systems — Thermoplastics piping systems for soil and waste discharge inside buildings — Test method for resistance to elevated temperature cycling* <u>The following supporting standards are deleted:</u> prEN ISO 10468, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of long-term specific ring creep stiffness under wet conditions and calculation of the wet creep factor (ISO/DIS 10468:1999)* prEN ISO 14828, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of long-term specific ring relaxation stiffness under wet conditions and calculation of the wet relaxation factor (ISO/DIS 14828:1999)*	
B.3.10	The following wording replaces the existing text: 'None'	Relating technical classes to the type of intended use was not relevant.
C	Family (7) "VALVES and TAPS" deleted.	Valves and taps are dealt with by CEN/TC 69.
C.1	Updating of WI 00155591 numbering and dates of availability has been made. The number of the standard (EN 15014) is also given	First answer to the mandate having been issued in 2000, the WI and dates had to be updated.
C.1 (i)	The following new title is proposed:	It reflects more precisely the content of the standard.

	Plastics piping systems — Buried and above ground piping components for water and other liquids under pressure — Requirements and test/assessment methods for pipes and fittings	
C.1 (ii)	The following new scope is proposed: *This European standard specifies requirements for plastics pipes and fittings for pressure applications for water supply, drainage, sewerage and irrigation, as well as for any other pressure application in which other liquids are conveyed with the exception of water intended for human consumption.* *It gives the associated test/assessment methods.* *This standard does not cover adhesives, joint sealings and gaskets.*	It reflects more precisely the content of the standard.
C.1 (iii)	The following intended use is proposed: *Buried or above-ground conveyance of water, raw water prior to treatment, waste water, water for general purposes, vacuum-operated soil and waste conveyance and other liquids under pressure, for both outside and inside buildings.*	It reflects more precisely the content of the standard.
C.1 (iv) Family (2) Pipes Family (4) Fittings, adhesives, joints, joints sealings and gaskets. Family (7) "VALVES and TAPS"	 The following essential characteristic is added: *- Reaction to fire (only for above ground uses)* The following essential characteristic are added: *- Reaction to fire (only for above ground uses)* deleted.	 Wrongly addressed as not relevant in the original answer to the mandate. Wrongly addressed as not relevant in the original answer to the mandate. see C
C.1 (v) Family (2) Pipes	The following durability verification is proposed: *Durability of internal pressure strength:* *- Degree of gelation (for PVC*	Not specifically detailed in the original answer.

	only) *- Oxidation Induction Time (for PE only)* *- Temperature of deflection of the resin (for GRP only)* *- Crystaline Melt Point (for PVDF only)* *Durability of internal pressure strength:* *- Effects of heating (for PVC only* *- Oxidation Induction Time (for PE only)* *- Temperature of deflection of the resin (for GRP only)* *- Crystaline Melt Point (for PVDF only)*	
Family (4) Fittings, adhesives, joints, joints sealings and gaskets.		
C.2.1	The list of supporting standards is updated by adding the following standards: EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests* EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item* EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item* EN 1796, *Plastics piping systems for water supply with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)* EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints* ISO 161-1, *Thermoplastics pipes for the conveyance of fluids — Nominal outside diameters and nominal pressures — Part 1: Metric series* ISO 17456, *Plastics piping systems — Multilayer pipes — Determination of long-term strength* EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)* EN ISO 1167-2, *Thermoplastics*	Test methods were added to take into account complaints to the Commission from Germany, The Netherlands and Poland. .

	pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 2: Preparation of pipe test pieces (ISO 1167-2:2006) EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2007)* ISO 8521, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Test methods for the determination of the apparent initial circumferential tensile strength* ISO 17456, *Plastics piping systems — Multilayer pipes — Determination of long-term strength* EN 713, *Plastics piping systems — Mechanical joints between fittings and polyolefin pressure pipes — Test method for leaktightness under internal pressure of assemblies subjected to bending* EN 911, *Plastics piping systems — Elastomeric sealing ring type joints and mechanical joints for thermoplastics pressure piping — Test method for leaktightness under external hydrostatic pressure* EN ISO 13783, *Plastics piping systems — Unplasticized poly(vinyl chloride) (PVC-U) end-load-bearing double socket joints — Test method for leaktightness and strength while subjected to bending and internal pressure (ISO 13783:1997)* EN ISO 13844, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints of unplasticized poly(vinyl chloride) (PVC-U) for use with PVC-U pipes — Test method for leaktightness under negative pressure (ISO 13844:2000)* EN ISO 13845, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints for use with unplasticized poly(vinyl chloride) (PVC-U) pipes — Test method for leaktightness under internal pressure and with angular deflection (ISO 13845:2000)* ISO 21004, *Plastics piping systems — Multilayer pipes and their joints, based on thermoplastics, for water supply* <u>The following supporting standards are deleted:</u> EN 1119, *Plastics piping systems — Joints for glass-reinforced*	

	thermosetting plastics (GRP) pipes and fittings — Test methods for leaktightness and resistance to damage of flexible and reducedarticulation joints EN 1447, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of long-term resistance to internal pressure* ISO 4065, *Thermoplastic pipes — Universal wall thickness table* EN 705, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Methods for regression analysis and their use* EN ISO 9969, *Thermoplastics pipes — Determination of ring stiffness* EN 1228, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of initial specific ring stiffness* EN ISO 178, *Plastics — Determination of flexural properties* EN 715, *Thermoplastics piping systems — End-load bearing joints between small diameter pressure pipes and fittings — Test method for leaktightness under internal water pressure, including end thrust* EN 1448, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) components — Test methods to prove the design of rigid locked socket-and-spigot joints with elastomeric seals* EN 1449, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) components — Test methods to prove the design of cemented socket-and-spigot joints* EN 1450, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) components — Test methods to prove the design of bolted flange joints*	
C 2.2	The list of supporting standards is updated by adding the following standards: EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests* EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item* EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus*	Test methods were added to take into account complaints to the Commission from Germany, The Netherlands and Poland.

	to thermal attack by a single burning item EN 1796, *Plastics piping systems for water supply with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)* EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints* ISO 161-1, *Thermoplastics pipes for the conveyance of fluids — Nominal outside diameters and nominal pressures — Part 1: Metric series* ISO 17456, *Plastics piping systems — Multilayer pipes — Determination of long-term strength* EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)* EN ISO 1167-3, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 3: Preparation of components (ISO 1167-3:2007)* EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2007)* EN 713, *Plastics piping systems — Mechanical joints between fittings and polyolefin pressure pipes — Test method for leaktightness under internal pressure of assemblies subjected to bending* EN 911, *Plastics piping systems — Elastomeric sealing ring type joints and mechanical joints for thermoplastics pressure piping — Test method for leaktightness under external hydrostatic pressure* EN ISO 13783, *Plastics piping systems — Unplasticized poly(vinyl chloride) (PVC-U) end-load-bearing double socket joints — Test method for leaktightness and strength while subjected to bending and internal pressure (ISO 13783:1997)* EN ISO 13844, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints of unplasticized poly(vinyl chloride) (PVC-U) for use with PVC-U pipes*	

	— Test method for leaktightness under negative pressure (ISO 13844:2000) EN ISO 13845, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints for use with unplasticized poly(vinyl chloride) (PVC-U) pipes — Test method for leaktightness under internal pressure and with angular deflection (ISO 13845:2000)* ISO 8521, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Test methods for the determination of the apparent initial circumferential tensile strength* <u>The following supporting standards are deleted:</u> ISO 4065, *Thermoplastic pipes — Universal wall thickness table* EN 705, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Methods for regression analysis and their use* EN 715, *Thermoplastics piping systems — End-load bearing joints between small diameter pressure pipes and fittings — Test method for leaktightness under internal water pressure, including end thrust* EN 1119, *Plastics piping systems — Joints for glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods for leaktightness and resistance to damage of flexible and reducedarticulation joints* EN 1448, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) components — Test methods to prove the design of rigid locked socket-and-spigot joints with elastomeric seals* EN 1449, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) components — Test methods to prove the design of cemented socket-and-spigot joints* EN 1450, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) components — Test methods to prove the design of bolted flange joints*	
C.2.3 (7) VALVES and TAPS (deleted)	Deleted, As a result of that <u>the following supporting standards are deleted:</u> EN ISO 9080, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics material*	This clause is no longer relevant, see C.

	in pipe form by extrapolation (Revision of ISO/TR 9080:1992) EN ISO 3126, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)* ISO 5208, *Industrial valves — Pressure testing of valves* EN 28659, *Thermoplastics valves — Fatigue strength — Test method* EN 917, *Plastics piping systems — Thermoplastics valves — Test methods for resistance to internal pressure and leaktightness*	
C.2.4 (new C.2.3)	Becomes C.2.3 DURABILITY The list of supporting standards is updated by adding the following standards: EN ISO 75-2, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite* EN ISO 580, *Plastics piping and ducting systems — Injection-moulded thermoplastics fittings — Methods for visually assessing the effects of heating* ISO 9852, *Unplasticized poly(vinyl chloride) (PVC-U) pipes — Dichloromethane resistance at specified temperature (DCMT) — Test method* ISO 11357-3, *Plastics — Differential scanning calorimetry (DSC) — Part 3: Determination of temperature and enthalpy of melting and crystallization* ISO 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)* <u>The following supporting standards are deleted :</u> EN 681-2, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 2: Thermoplastics elastomers*	Test methods were added to take into account complaints to the Commission from Germany, The Netherlands and Poland.
C.3.1.3 (7) VALVES and TAPS	Deleted	This clause is no longer relevant, see C
C.3.10	The following wording replaces the existing text: 'None'	The explanation on dimensional tolerances was not relevant. Relating technical classes to the type of intended use was not relevant.

D.1	Updating of WI 00155592 numbering and dates of availability has been made. The number of the standard (EN 15015) is also given	First answer to the mandate having been issued in 2000, the WI and dates had to be updated
D.1(i)	The following new title is proposed: Plastic piping systems – Hot and cold water piping components - Requirements and test/assessments methods for pipes and fittings.	It reflects more precisely the content of the standard
D.1(ii)	The following new scope is proposed: This European Standard specifies requirements for plastics pipes and fittings for hot and cold water installations. It gives associated test/assessment methods. This standard does not cover adhesives, joint sealings and gaskets.	It reflects more precisely the content of the standard.
D.1(iii)	The following intended use is proposed: It is intended to be used for distribution of hot and cold water and for heating systems inside buildings with the exception of water intended for human consumption.	It reflects more precisely the content of the standard
D.1(iv) Family (2) Pipes Family (4) Fittings, adhesives, joints, joints sealings and gaskets.	The following essential characteristic is added: - *Reaction to fire* The following essential characteristic is deleted: *Resistance to high temperature (for heating networks) (not relevant)* The following essential characteristic is added: - *Reaction to fire* The following essential characteristic is deleted: *Resistance to high temperature (for heating networks) (not*	 Reaction to fire added as requirements exist in at least one MS It is not high but elevated temperatures that these pipes have to resist. Reaction to fire added as requirements exist in at least one MS It is not high but elevated

	relevant)	temperatures that these pipes have to resist.
D.1(v) Family (2) Pipes Family (4) Fittings, adhesives, joints, joints sealings and gaskets.	The following durability verification is proposed: *Durability of internal pressure strength:* *- Vicat softening temperature (for PVC-C only* *- MFR (for PP, PB, PE-RT and multi-layer)* *- Degree of crosslinking (for PE-X and multi-layer of PE-X)* *Durability of internal pressure strength:* *- Vicat softening temperature (for PVC-C only* *- MFR (for PP, PB and PE-RT)* *- Degree of crosslinking (for PE-X and multi-layer of PE-X)*.	Not specifically detailed in the original answer.
D.2.1	The list of supporting standards is updated by adding the following standards: EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests* EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item* EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item* EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)* EN ISO 1167-2, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 2: Preparation of pipe test pieces (ISO 1167-2:2006)* ISO 17456, *Plastics piping systems — Multilayer pipes — Determination of the long-term hydrostatic strength* <u>The following supporting standards are deleted:</u> EN 921, *Plastics piping systems — Thermoplastics pipes — Determination of resistance to internal pressure at constant*	Test methods were added to take into account complaints to the Commission from Germany, The Netherlands and Poland. This reflects actual practice.

	temperature (with Corrigendum EN/AC 921:1995) ISO 4065, *Thermoplastic pipes — Universal wall thickness table* EN 12294, *Plastics piping systems — Systems for hot and cold water — Test method for leaktightness under vacuum*	
D.2.2	The list of supporting standards is updated by adding the following standards: EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests* EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item* EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item* EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)* EN ISO 1167-3, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 3: Preparation of components (ISO 1167-3:2007)* EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2007)* <u>The following supporting standards are deleted:</u> EN 921, *Plastics piping systems — Thermoplastics pipes — Determination of resistance to internal pressure at constant temperature (with Corrigendum EN/AC 921:1995)* ISO 4065, *Thermoplastic pipes — Universal wall thickness table* EN 12294, *Plastics piping systems — Systems for hot and cold water — Test method for leaktightness under vacuum*	
D.2.3	The list of supporting standards is updated by adding the following standards:	Material aspects introduced to take into account complaints to the Commission from Germany,

	EN ISO 1133 Plastics— *Determination of the melt mass-flow rate (MFR) and the melt volume-flow (MVR) of thermoplastics (ISO 1133:2005)* <u>The following supporting standards are deleted :</u> EN 681-2, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 2: Thermoplastics elastomers*	The Netherlands and Poland. -EN 579 No longer needed -EN 727 No longer needed - EN ISO 1133 is replacing ISO 1133

The changes listed here above are detailed here below in the relevant clauses on basis of the template for the answer to the Mandate (Document CMF N032 rev.2 Suppl. to BTS1 N877).

Annex:

CEN/TC 155 "Plastics piping systems and ducting systems"

155-N-3747 Revised answer of CEN/TC155 to mandate M/131

0 General comments from TC 155 related to the answer to the mandate

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work:

None.

0.2) Requests for clarification on the intended use:

None.

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs:

Piping systems made of cast iron (e.g. EN 598 and EN 877) belong to the scope of CEN/TC 203.
Piping systems made of vitrified clay, fibre cement, longitudinal welded hot-dip galvanized steel, longitudinal welded stainless steel and concrete belong to the scope of CEN/TC 165.
Piping systems covered by the family and subfamilies 5 "DUCTS and CONDUITS" are covered by CLC/TC 213.

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard:

TC 155 does not (intend to) cover pipes supports as there are no technical barriers to trade identified for such supports and therefore does not consider the family and subfamilies 6 "PIPE and DUCT SUPPORTS" to be relevant.
Piping systems covered by the family and subfamilies 5 "DUCTS and CONDUITS" are covered by CLC/TC 213.

NOTE 1: The term "FITTING" includes the term "JOINT" as meant by mandate M 131

NOTE 2: The family (1) "PIPING KITS/SYSTEMS" is not addressed.

0.5) Specific requests for additions to the mandate of products, materials, intended uses, performance characteristics, etc.:

None.

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs:

The standard covered by A, B, C and D will make normative reference to standards from CEN/TC 127 on reaction to fire.

0.7) Other issues which the TC considers necessary for the comprehension of the answer to the mandate:

None.

A NON-PRESSURE PIPING SYSTEMS FOR SOIL AND WASTE

Applicable families and subfamilies:

(2) PIPES

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

A.1 Harmonised standard

	Dates of availability
prEN 15012 [S&W discharge], WI 00155751	Stage 32: 2010-11, Stage 40: 2011-03, Stage 49: 2011-12

(i) Title: Plastics piping systems — Non pressure soil and waste discharge piping components within the building structure — Requirements and test/assessment methods for pipes and fittings.

(ii) Scope: This European Standard specifies requirements for non-pressure thermoplastics pipes and fittings for soil and waste applications.

It gives the associated test/assessment methods.

This standard does not cover adhesives, joint sealings and gaskets.

(iii) Intended use: Soil and waste discharge applications:
— inside the building (application area code "B");
— buried in ground within the building structure (application area code "BD") and with a diameter greater than or equal to 75 mm.

(iv) The performance characteristics according to the mandate which will be dealt with in the above standard will be: n

(2) PIPES:

Reaction to fire
Crushing strength (not relevant)
Internal and external pressure strength (not relevant)
Longitudinal bending strength (not relevant)
Maximum load for admissible deformation (only relevant for buried in ground applications)
Dimensional tolerances
Resistance to high temperature (for heating networks) (not relevant)
Impact resistance (not relevant)
Weldability (for gas networks) (not relevant)
Penetration resistance (for gas networks) (not relevant)
Electrostatic behaviour (for fuel networks) (not relevant)
Tightness: Gas and liquid
Permeability (not relevant)
Release of dangerous substances
Thermal properties (not relevant)

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Reaction to fire
Crushing strength (not relevant)
Internal pressure (not relevant)
Maximum load for admissible deformation (only relevant for buried in ground applications)
Dimensional tolerances
Tightness: Gas and liquid
Resistance to high temperature (for heating networks) (not relevant)
Impact resistance (for gas networks) (not relevant)
Weldability (for gas networks) (not relevant)
Penetration resistance (for gas networks) (not relevant)
Electrostatic behaviour (for fuel networks) (not relevant)
Release of dangerous substances
Thermal insulation (related to Energy conservation) (not relevant)

(v) Durability: Considered are:

(2) PIPES:

Durability of tightness (gas and liquid):
- Vicat softening point (for PVC ABS, PVC/san and PVC-C)
- MFR and Oxidation Induction Time (PE and PP)

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Durability of tightness (gas and liquid):
- Vicat softening point (for PVC ABS, PVC/san and PVC-C)
- MFR and Oxidation Induction Time (PE and PP)

(2) PIPES: and
(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Durability of tightness (gas and liquid):
- cycling test with elevated temperature of pipes and fittings

The tightness of elastomeric sealing connections is deemed to be durable if the sealing element conforms to EN 681-1, EN 681-2, EN 681-3 or EN 681-4, as applicable.

(vi) Other aspects: The harmonised standard will also contain:

- a reference to the Commission's Decision on attestation of conformity,
- clauses on the evaluation of conformity (including Factory Production Control),
- guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

A.2 Supporting assessment methods

The following ENs, prENs and WIs may serve as test or calculation methods for the determination of the performance characteristics required by the mandate and indicated in clause A.1 (iv) above:

A.2.1 (2) PIPES:

Reaction to fire:

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*
EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*
EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item*

Maximum load for admissible deformation:

EN ISO 9969, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969:2007*)
ISO 13966, *Thermoplastics pipes and fittings — Nominal ring stiffnesses*

Dimensional tolerances:

EN ISO 3126, *Plastics piping systems - Plastics piping components - Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)*

Tightness: Gas and liquid:

ISO 13254, *Thermoplastics piping systems for non-pressure applications — Test method for watertightness*
ISO 13255, *Thermoplastics piping systems for soil and waste discharge inside buildings — Test method for airtightness of joints*

Release of dangerous substances:

Covered in the hEN using agreed CEN BT wording

A.2.2 (4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Reaction to fire:

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item*

Maximum load for admissible deformation:

ISO 13966, *Thermoplastics pipes and fittings — Nominal ring stiffnesses*

EN ISO 13967, *Thermoplastics fittings — Determination of ring stiffness*

Dimensional tolerances:

EN ISO 3126, *Plastics piping systems - Plastics piping components - Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)*

Tightness: Gas and liquid:

ISO 13254, *Thermoplastics piping systems for non-pressure applications — Test method for watertightness*

ISO 13255, *Thermoplastics piping systems for soil and waste discharge inside buildings — Test method for airtightness of joints*

Release of dangerous substances:

Covered in the hEN using agreed CEN BT wording

A.2.3 DURABILITY

Tightness: Gas and liquid

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: Thermoplastics elastomers*

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

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

ISO 1133, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics*

ISO 2507-1, *Thermoplastics pipes and fittings — VICAT softening temperature — Part 1: General test method*

ISO 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)*

ISO 13257, *Thermoplastics piping systems for non pressure applications — Test method for resistance to elevated temperature cycling*

A.3 Additional information, comments and remarks

A.3.1 Explanation for irrelevancy of performance characteristics mentioned in the mandate for the products with the intended use for non-pressure soil and waste discharge within the building structure.

The following performance characteristics are not considered relevant by TC 155 for the following reasons:

A.3.1.1 (2) PIPES:

- Impact resistance: not applicable: not subject to regulatory requirements

- The characteristics crushing strength, internal and external pressure strength, longitudinal bending strength, maximum load for admissible deformation (above ground) and thermal properties are not relevant because of the intended use and therefore also not subject to regulatory requirements.

- Permeability: plastics pipes are inherently impermeable.

A.3.1.2 (4) FITTINGS

The characteristics crushing strength , internal pressure strength and maximum load for admissible deformation (above ground) are not relevant because of the intended use and therefore also not subject to regulatory requirements.

A.3.2 Deviations from a performance approach in the standard:

None

A.3.3 Requests for clarification on the scope of the mandate concerning the products in A above:

None.

A.3.4 Requests for clarification on the intended uses concerning the products in A above:

None.

A.3.5 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the products under A above:

None.

A.3.6 Information on performance characteristics required by the mandate concerning the products in A above, for which no work has yet been started in the TC, or for which the TC cannot provide a standard:

None.

A.3.7 Explanation of the state of the art concerning durability issues:

None.

A.3.8 Information on other Directives under which the products in A above falls, and compliance conditions:

None.

A.3.9 Specific requests for additions to the mandate of materials, intended uses or performance characteristics concerning the products in A above:

None.

A.3.10 Other issues which the TC considers necessary for comprehension of the answer to the mandate:

None.

B NON-PRESSURE PIPING SYSTEMS FOR SEWER

Applicable families and subfamilies:

(2) PIPES

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

B.1 Harmonised standard

	Dates of availability
prEN 15013 [Non-press. D&S], WI 00155752	Stage 32: 2010-11, Stage 40: 2011-03, Stage 49: 2011-12

(i) Title: Plastics piping systems - Non-pressure drainage and sewerage components buried in ground - Requirements and test/assessment methods for pipes and fittings

(ii) Scope: This European Standard specifies requirements for non-pressure plastics pipes and fittings for drainage and sewerage applications. It gives the associated test/assessment methods

This pipework is used both underground in the U area (more than 1 m from the building structure) and underground in the D area (connected to the soil and waste discharge system and buried within or under the building structure).The standard does not apply to perforated engineering drainage pipes nor to highway drainage pipes, perforated or non-perforated.

(iii) Intended use: Conveyance of non-pressure underground drainage and sewerage.

(iv) The performance characteristics according to the mandate which will be dealt with in the above standard will be :

(2) PIPES:

Reaction to fire
Crushing strength (not relevant)
Internal and external pressure strength (not relevant)
Longitudinal bending strength (not relevant)
Maximum load for admissible deformation
Dimensional tolerances
Resistance to high temperature (for heating networks) (not relevant)
Impact resistance (not relevant)
Weldability (for gas networks) (not relevant)
Penetration resistance (for gas networks) (not relevant)
Electrostatic behaviour (for fuel networks) (not relevant)
Tightness: Gas and liquid
Permeability (not relevant)
Release of dangerous substances
Thermal properties (not relevant)

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Reaction to fire
Crushing strength (not relevant)
Internal pressure (not relevant)
Maximum load for admissible deformation
Dimensional tolerances
Tightness: Gas and liquid
Resistance to high temperature (for heating networks) (not relevant)
Impact resistance (for gas networks) (not relevant)
Weldability (for gas networks) (not relevant)
Penetration resistance (for gas networks) (not relevant)
Electrostatic behaviour (for fuel networks) (not relevant)
Release of dangerous substances
Thermal insulation (related to Energy conservation) (not relevant)

(v) Durability: Considered are:

(2) PIPES:

Durability of maximum load for admissible deformation related to material and wall construction:
- long term strain resistance
- ring flexibility
- long term creep ring stiffness

Durability of tightness after elevated temperature cycling test of pipes:
- cycling test at elevated temperature.

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Durability of tightness after elevated temperature cycling test of fittings:
- cycling test at elevated temperature.

The tightness of elastomeric sealing connections shall be deemed to be durable if the material used to
manufacture the sealing elements conforms to EN 681-1, EN 681-2, EN 681-3 or EN 681-4, as applicable.

Durability for maximum load for admissible deformation = the stiffness. (see B.2.3)

(vi) Other aspects: The harmonised standard will also contain:

- a reference to the Commission's Decision on attestation of conformity,
- clauses on the evaluation of conformity (including Factory Production Control),
- guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

B.2 Supporting assessment methods

The following ENs, prENs and WIs may serve as test or calculation methods for the determination of the performance characteristics required by the mandate and indicated in clause B.1 (iv) above:

B.2.1 (2) PIPES:

Reaction to fire:

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*
EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*
EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item*

Maximum load for admissible deformation:
EN ISO 9967, Plastics pipes — Determination of creep ratio (ISO 9967:1994)
EN ISO 9969, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969:1995)*
ISO 13966, *Thermoplastics pipes and fittings — Nominal ring stiffnesses*

Dimensional tolerances:
EN ISO 3126, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)*

Tightness: Gas and liquid:
EN 1277, *Plastics piping systems — Thermoplastics piping systems for buried non-pressure applications — Test methods for leaktightness of elastomeric sealing ring type joints*
EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints*

Release of dangerous substances:

Covered in the hEN using agreed CEN BT wording

B.2.2 (4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Reaction to fire:

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item*

Maximum load for admissible deformation:

ISO 13966, *Thermoplastics pipes and fittings — Nominal ring stiffnesses*

EN ISO 13967, *Thermoplastics fittings — Determination of ring stiffness*

Dimensional tolerances:

EN ISO 3126, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)*

Tightness: Gas and liquid:

EN 1277, *Plastics piping systems — Thermoplastics piping systems for buried non-pressure applications — Test methods for leaktightness of elastomeric sealing ring type joints*

EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints*

Release of dangerous substances:

Covered in the hEN using agreed CEN BT wording

B.2.3 DURABILITY

Maximum load for admissible deformation:

a) For thermoplastics pipes.

EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure —Part 1: General method (ISO 1167-1:2006)*

EN ISO 9967, *Plastics pipes —Determination of creep ratio (ISO 9967:1994)*

EN ISO 13968, *Plastics piping and ducting systems - Thermoplastics pipes - Determination of ring flexibility (ISO 13968:2008)*

b) For thermosetting pipes:

EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints* ISO 10468, *Glass-reinforced thermosetting plastics (GRP) pipes — Determination of the long-term specific ring creep stiffness under wet conditions and calculation of the wet creep factor*

Tightness: Gas and liquid:

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: Thermoplastics elastomers*

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

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

Tightness after elevated temperature cycling of pipes and fittings

EN 1055, *Plastics piping systems — Thermoplastics piping systems for soil and waste discharge inside buildings — Test method for resistance to elevated temperature cycling*

B.3 Additional information, comments and remarks

B.3.1 Explanation for irrelevancy of performance characteristics mentioned in the mandate for the products with the intended use for non-pressure drainage and sewerage

B.3.1.1 (2) PIPES:

- Impact resistance: not applicable: not subject to regulatory requirements

- The characteristics crushing strength, internal and external pressure strength, longitudinal bending strength and thermal properties are not relevant because of the intended use and therefore also not subject to regulatory requirements.

- Permeability: plastics pipes and fittings are inherently impermeable.

B.3.1.2 (4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

- Maximum load for admissible deformation: fittings are always stiffer than the stiffness of the pipe for which they are designed and are market according to the pipe.

- The characteristics crushing strength and internal pressure strength are not relevant because of the intended use and therefore also not subject to regulatory requirements.

B.3.2 Deviations from a performance approach in the standard:

None.

B.3.3 Requests for clarification on the scope of the mandate concerning the products in B above:

None.

B.3.4 Requests for clarification on the intended uses concerning the products in B above:

None.

B.3.5 Requests for clarification on the performance characteristics for the intended uses included in the mandate concerning the products under B above:

None.

B.3.6 Information on performance characteristics required by the mandate concerning the products in B above, for which no work has yet been started in the TC, or for which the TC cannot provide a standard:

None.

B.3.7 Explanation of the state of the art concerning durability issues:

None.

B.3.8 Information on other Directives under which the products in B above falls, and compliance conditions:

None

B.3.9 Specific requests for additions to the mandate of materials, intended uses or performance characteristics concerning the products in B above:

None

B.3.10 Other issues which the TC considers necessary for comprehension of the answer to the mandate:

Technical classes (stiffness classes) and their corresponding threshold values may be considered related to the type of intended use.

C PRESSURE PIPING SYSTEMS FOR SEWER and NON-DRINKING WATER:

Applicable families and subfamilies:

(2) PIPES

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

C.1 Harmonised standard

	Dates of availability
prEN 15014 [Press. D&S, non-drinking water], WI 00155753	Stage 32: 2010-11, Stage 40: 2011-03, Stage 49: 2011-12

(i) Title: Plastics piping systems — Buried and above ground piping components for water and other liquids under pressure — Requirements and test/assessment methods for pipes and fittings

(ii) Scope: This European standard specifies requirements for plastics pipes and fittings for pressure applications for water supply, drainage, sewerage and irrigation, as well as for any other pressure application in which other liquids are conveyed with the exception of water intended for human consumption. It gives the associated test/assessment methods. This standard does not cover adhesives, joint sealings and gaskets.

(iii) Intended use: Buried or above-ground conveyance of water, raw water prior to treatment, waste water, water for general purposes, vacuum-operated soil and waste conveyance and other liquids under pressure, for both outside and inside buildings.

(iv) The performance characteristics according to the mandate which will be dealt with in the above standard will be:

(2) PIPES:

Reaction to fire (only for above ground uses)
Crushing strength (not relevant)
Internal and external pressure strength
Longitudinal bending strength (not relevant)
Maximum load for admissible deformation (not relevant)
Dimensional tolerances
Resistance to high temperature (for heating networks) (not relevant)
Impact resistance (not relevant)
Weldability (for gas networks) (not relevant)
Penetration resistance (for gas networks) (not relevant)
Electrostatic behaviour (for fuel networks) (not relevant)
Tightness: Gas and liquid
Permeability (not relevant)
Release of dangerous substances
Thermal properties (not relevant)

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Reaction to fire (only for above ground uses)
Crushing strength (not relevant)
Internal pressure
Maximum load for admissible deformation (not relevant)
Dimensional tolerances
Tightness: Gas and liquid
Resistance to high temperature (for heating networks) (not relevant)
Impact resistance (for gas networks) (not relevant)
Weldability (for gas networks) (not relevant)
Penetration resistance (for gas networks) (not relevant)
Electrostatic behaviour (for fuel networks) (not relevant)
Release of dangerous substances
Thermal insulation (related to Energy conservation) (not relevant)

(v) Durability: Considered are:

(2) PIPES:

Durability of internal pressure strength:
- Degree of gelation (for PVC only)
- Oxidation Induction Time (for PE only)
- Temperature of deflection of the resin (for GRP only)
- Crystaline Melt Point (for PVDF only)

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Durability of internal pressure strength:
- Effects of heating (for PVC only
- Oxidation Induction Time (for PE only)
- Temperature of deflection of the resin (for GRP only)
- Crystaline Melt Point (for PVDF only)

The tightness of elastomeric sealing connections is deemed to be durable if the sealing element conforms to EN 681-1 or EN 681-4, as applicable.

(vi) Other aspects: The harmonised standard will also contain:

- a reference to the Commission's Decision on attestation of conformity,
- clauses on the evaluation of conformity (including Factory Production Control),
- guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

C.2 Supporting assessment methods

The following ENs, prENs and WIs may serve as test or calculation methods for the determination of the performance characteristics required by the mandate and indicated in clause C.1 (iv) above:

C.2.1 (2) PIPES:

Reaction to fire:

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*
EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*
EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item*

Internal and external pressure strength:

EN 1796, *Plastics piping systems for water supply with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)*
EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints*
EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*
EN ISO 1167-2, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 2: Preparation of pipe test pieces (ISO 1167-2:2006)*
EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2007)*
EN ISO 9080, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics material in pipe form by extrapolation (Revision of ISO/TR 9080:1992)*
EN ISO 12162, *Thermoplastics materials for pipes and fittings for pressure applications — Classification and designation — Overall service (design) coefficient*
ISO 161-1, *Thermoplastics pipes for the conveyance of fluids — Nominal outside diameters and nominal pressures — Part 1: Metric series*

ISO 8521, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Test methods for the determination of the apparent initial circumferential tensile strength*
ISO 17456, *Plastics piping systems — Multilayer pipes — Determination of long-term strength*
ISO 21004, *Plastics piping systems — Multilayer pipes and their joints, based on thermoplastics, for water supply*

Dimensional tolerances:

EN ISO 3126, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)*

Tightness: Gas and liquid:

EN 713, *Plastics piping systems — Mechanical joints between fittings and polyolefin pressure pipes — Test method for leaktightness under internal pressure of assemblies subjected to bending*
EN 911, *Plastics piping systems — Elastomeric sealing ring type joints and mechanical joints for thermoplastics pressure piping — Test method for leaktightness under external hydrostatic pressure*
EN 1796, *Plastics piping systems for water supply with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)*
EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints*
EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*
EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2007)*
EN ISO 13783, *Plastics piping systems — Unplasticized poly(vinyl chloride) (PVC-U) end-load-bearing double socket joints — Test method for leaktightness and strength while subjected to bending and internal pressure (ISO 13783:1997)*
EN ISO 13844, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints of unplasticized poly(vinyl chloride) (PVC-U) for use with PVC-U pipes — Test method for leaktightness under negative pressure (ISO 13844:2000)*
EN ISO 13845, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints for use with unplasticized poly(vinyl chloride) (PVC-U) pipes — Test method for leaktightness under internal pressure and with angular deflection (ISO 13845:2000)*
EN ISO 13846, *Plastics piping systems — End-load-bearing and non-end-load-bearing assemblies and joints for thermoplastics pressure piping — Test method for long-term leaktightness under internal water pressure*

Release of dangerous substances:

Covered in the hEN using agreed CEN BT wording

C.2.2 (4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Reaction to fire:

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*
EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*
EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item*

Internal pressure:

EN 1796, *Plastics piping systems for water supply with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)*
EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints*
EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*

EN ISO 1167-3, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 3: Preparation of components (ISO 1167-3:2007)*

EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2007)*

EN ISO 9080, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics material in pipe form by extrapolation (Revision of ISO/TR 9080:1992)*

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

ISO 161-1, *Thermoplastics pipes for the conveyance of fluids — Nominal outside diameters and nominal pressures — Part 1: Metric series*

ISO 8521, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Test methods for the determination of the apparent initial circumferential tensile strength*

ISO 17456, *Plastics piping systems — Multilayer pipes — Determination of long-term strength*

Dimensional tolerances:

EN ISO 3126, *Plastics piping systems — Plastics piping components - Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)*

Tightness: Gas and liquid:

EN 713, *Plastics piping systems — Mechanical joints between fittings and polyolefin pressure pipes — Test method for leaktightness under internal pressure of assemblies subjected to bending*

EN 911, *Plastics piping systems — Elastomeric sealing ring type joints and mechanical joints for thermoplastics pressure piping — Test method for leaktightness under external hydrostatic pressure*

EN 1796, *Plastics piping systems for water supply with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)*

EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints*

EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*

EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2007)*

EN ISO 13783, *Plastics piping systems — Unplasticized poly(vinyl chloride) (PVC-U) end-load-bearing double socket joints — Test method for leaktightness and strength while subjected to bending and internal pressure (ISO 13783:1997)*

EN ISO 13844, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints of unplasticized poly(vinyl chloride) (PVC-U) for use with PVC-U pipes — Test method for leaktightness under negative pressure (ISO 13844:2000)*

EN ISO 13845, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints for use with unplasticized poly(vinyl chloride) (PVC-U) pipes — Test method for leaktightness under internal pressure and with angular deflection (ISO 13845:2000)*

EN ISO 13846, *Plastics piping systems — End-load-bearing and non-end-load-bearing assemblies and joints for thermoplastics pressure piping — Test method for long-term leaktightness under internal water pressure*

Release of dangerous substances:

Covered in the hEN using agreed CEN BT wording

C.2.3 DURABILITY

Internal and external pressure strength:

For characteristics related to materials the following applies as applicable:

EN ISO 75-2, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*

EN ISO 580, *Plastics piping and ducting systems — Injection-moulded thermoplastics fittings — Methods for visually assessing the effects of heating*
ISO 9852, *Unplasticized poly(vinyl chloride) (PVC-U) pipes — Dichloromethane resistance at specified temperature (DCMT) — Test method*
ISO 11357-3, *Plastics — Differential scanning calorimetry (DSC) — Part 3: Determination of temperature and enthalpy of melting and crystallization*
ISO 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)*

For pipes and fittings see C.2.1 and C.2.2.

Tightness: Gas and liquid:

Of elastomeric sealing connections:
EN 681-1, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*
EN 681-4, *Elastomeric seals — Material requirements for pipe joint seals used in drainage and sewerage applications — Part 4: Cast polyurethane sealing elements*

For pipes and fittings see C.2.1 and C.2.2.

C.3 Additional information, comments and remarks

C.3.1 Explanation for irrelevancy of performance characteristics mentioned in the mandate for the products with the intended use for underground drainage and sewerage under pressure and non-drinking water under pressure.

Effectiveness has to be considered as irrelevant because no legislation is known to regulate a tap is closed when closed and open when opened.

Noise level: For installations for which the valves under this standard are designed the noise level of the valve is irrelevant.

C.3.1.1(2) PIPES:

- Reaction to fire: not applicable for underground applications.
- Impact resistance: not applicable: not subject to regulatory requirements
- The characteristics crushing strength, longitudinal bending strength and thermal properties are not relevant because of the intended use and therefore also not subject to regulatory requirements.
- Permeability: plastics pipes and fittings are inherently impermeable.

C.3.1.2(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

- Reaction to fire: not applicable for underground applications.
- Maximum load for admissible deformation: fittings are designed for a specific pressure (class) and are always stiffer than the corresponding pipe because of their geometry.
- The characteristic crushing strength is not relevant because of the intended use and therefore also not subject to regulatory requirements.

C.3.2 Deviations from a performance approach in the standard:

None.

C.3.3 Requests for clarification on the scope of the mandate concerning the products in C above:

None.

C.3.4 Requests for clarification on the intended uses concerning the products in C above:

None.

C.3.5 Requests for clarification on the performance characteristics for the intended uses included in the mandate concerning the products under C above:

None.

C.3.6 Information on performance characteristics required by the mandate concerning the products in C above, for which no work has yet been started in the TC, or for which the TC cannot provide a standard:

None.

C.3.7 Explanation of the state of the art concerning durability issues:

None.

C.3.8 Information on other Directives under which the products in C above falls, and compliance conditions:

None.

C.3.9 Specific requests for additions to the mandate of materials, intended uses or performance characteristics concerning the products in C above:

None.

C.3.10 Other issues which the TC considers necessary for comprehension of the answer to the mandate:

None.

D HOT AND COLD WATER not intended for human consumption INSIDE BUILDINGS:

Applicable families and subfamilies:

(2) PIPES

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

D.1 Harmonised standard

	Dates of availability
prEN 15015 [H&C water], WI 00155754	Stage 32: 2010-11, Stage 40: 2011-03, Stage 49: 2011-12

(i) Title: Plastic piping systems – Hot and cold water piping components - Requirements and test/assessments methods for pipes and fittings.

(ii) Scope: This European Standard specifies requirements for plastics pipes and fittings for hot and cold water installations. It gives associated test/assessment methods. This standard does not cover adhesives, joint sealings and gaskets.

(iii) Intended use: It is intended to be used for distribution of hot and cold water and for heating systems inside buildings with the exception of water intended for human consumption.

(iv) The performance characteristics according to the mandate which will be dealt with in the above standard will be:

(2) PIPES:

Reaction to fire
Crushing strength (not relevant)
Internal and external pressure strength
Longitudinal bending strength (not relevant)
Maximum load for admissible deformation (not relevant)
Dimensional tolerances
Resistance to high temperature (for heating networks) (not relevant)
Impact resistance (not relevant)
Weldability (for gas networks) (not relevant)
Penetration resistance (for gas networks) (not relevant)
Electrostatic behaviour (for fuel networks) (not relevant)
Tightness: Gas and liquid
Permeability (not relevant)
Release of dangerous substances
Thermal properties

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Reaction to fire
Crushing strength (not relevant)
Internal pressure
Maximum load for admissible deformation (not relevant)
Dimensional tolerances
Tightness: Gas and liquid
Resistance to high temperature (for heating networks) (not relevant)
Impact resistance (for gas networks) (not relevant)
Weldability (for gas networks) (not relevant)
Penetration resistance (for gas networks) (not relevant)
Electrostatic behaviour (for fuel networks) (not relevant)
Release of dangerous substances
Thermal insulation (related to Energy conservation) (not relevant)

(v) Durability: Considered are:

(2) PIPES:

Durability of internal pressure strength:
- Vicat softening temperature (for PVC-C only)

- MFR (for PP, PB, PE-RT and multi-layer)

- Degree of crosslinking (for PE-X and multi-layer of PE-X)

(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Durability of internal pressure strength:
- Vicat softening temperature (for PVC-C only

- MFR (for PP, PB and PE-RT)

- Degree of crosslinking (for PE-X and multi-layer of PE-X).

The tightness of connections is deemed to be durable when the requirements of 5.5 are met. Any sealing elements used, shall conform to EN 681-1.

(vi) Other aspects: The harmonised standard will also contain:

- a reference to the Commission's Decision on attestation of conformity,
- clauses on the evaluation of conformity (including Factory Production Control),
- guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

D.2 Supporting assessment methods

The following ENs, prENs and WIs as well as International Standards may serve as test or calculation methods for the determination of the performance characteristics required by the mandate and indicated in clause D.1 (iv) above:

D.2.1 (2) PIPES:

Reaction to fire:

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*
EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*
EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item*

Internal and external pressure strength:

EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*
EN ISO 1167-2, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 2: Preparation of pipe test pieces (ISO 1167-2:2006)*
EN ISO 9080, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics material in pipe form by extrapolation (Revision of ISO/TR 9080:1992)*
EN ISO 13760, *Plastics pipes for the conveyance of fluids under pressure — Miner's rule — Calculation method of cumulative damage (ISO 13760:1998)*
ISO 10508, *Thermoplastics pipes and fittings for hot and cold water systems*
ISO 17456, *Plastics piping systems — Multilayer pipes — Determination of the long-term hydrostatic strength*

Dimensional tolerances:

EN ISO 3126, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)*

Tightness: Gas and liquid:

EN 12293, *Plastics piping systems — Thermoplastics pipes and fittings for hot and cold water — Test method for the resistance of mounted assemblies to temperature cycling*
ISO 10508, *Thermoplastics pipes and fittings for hot and cold water systems*

Release of dangerous substances:

Covered in the hEN using agreed CEN BT wording

D.2.2 (4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

Reaction to fire:

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item*

Internal pressure:

EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*

EN ISO 1167-3, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 3: Preparation of components (ISO 1167-3:2007)*

EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2007)*

EN ISO 9080, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics material in pipe form by extrapolation (Revision of ISO/TR 9080:1992)*

EN ISO 13760, *Plastics pipes for the conveyance of fluids under pressure — Miner's rule — Calculation method of cumulative damage (ISO 13760:1998)*

ISO 10508, *Thermoplastics pipes and fittings for hot and cold water systems*

Dimensional tolerances:

EN ISO 3126, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions (revision of prEN 496:1991 and ISO 3126:1974) (ISO/DIS 3126:1999)*

Tightness: Gas and liquid:

EN 12293, *Plastics piping systems — Thermoplastics pipes and fittings for hot and cold water — Test method for the resistance of mounted assemblies to temperature cycling*

ISO 10508, *Thermoplastics pipes and fittings for hot and cold water systems*

Release of dangerous substances:

Covered in the hEN using agreed CEN BT wording

D.2.3 DURABILITY

a) For internal pressure strength: see D.2.1 and D.2.2

EN ISO 1133 Plastics—*Determination of the melt mass-flow rate (MFR) and the melt volume-flow (MVR) of thermoplastics (ISO 1133:2005)*

b) For tightness gas and liquid: see D.2.1 and D.2.2

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

D.3 Additional information, comments and remarks

D.3.1 Explanation for irrelevancy of performance characteristics mentioned in the mandate for the products with the intended use for the conveyance of hot and cold water not intended for human consumption.

D.3.1.1(2) PIPES:

- Impact resistance: not applicable: not subject to regulatory requirements

- The characteristics crushing strength, longitudinal bending strength and maximum load for admissible deformation are not relevant because of the intended use and therefore also not subject to regulatory requirements.

- Permeability: plastics pipes are inherently impermeable.

D.3.1.2(4) FITTINGS, ADHESIVES, JOINTS, JOINT SEALINGS AND GASKETS

- The characteristics crushing strength and maximum load for deformation are not relevant because of the intended use and therefore also not subject to regulatory requirements.

D.3.2 Deviations from a performance approach in the standard:

None.

D.3.3 Requests for clarification on the scope of the mandate concerning the products in D above:

None.

D.3.4 Requests for clarification on the intended uses concerning the products in D above:

None.

D.3.5 Requests for clarification on the performance characteristics for the intended uses included in the mandate concerning the products under D above:

None.

D.3.6 Information on performance characteristics required by the mandate concerning the products in D above, for which no work has yet been started in the TC, or for which the TC cannot provide a standard:

None.

D.3.7 Explanation of the state of the art concerning durability issues:

None.

D.3.8 Information on other Directives under which the products in D above falls, and compliance conditions:

None.

D.3.9 Specific requests for additions to the mandate of materials, intended uses or performance characteristics concerning the products in D above:

None.

D.3.10 Other issues which the TC considers necessary for comprehension of the answer to the mandate:

Technical classes (temperature and pressure classes) and their corresponding threshold values may be considered related to the type of intended use.