SLOVENSKI STANDARD
kSIST-TS FprCEN/TS 14541:2012

01-september-2012

Polimerne cevi in fitingi - Lastnosti za uporabo obtočnega materiala, lastnega regenerata in regeneratov tujega izvora iz PVC-U, PP- in PE-materialov - Komplementarni element

Plastics pipes and fittings - Characteristics for utilisation of non-virgin PVC-U, PP and PE materials - Complementary element

Kunststoffrohrleitungen und Formstücke - Eigenschaften für die Verwendung von Rücklaufmaterial und Recyclat aus PVC-U-, PP- und PE-Materialien - Ergänzendes Element

Tubes et raccords en plastique - Caractéristiques pour l'utilisation de matières non vièrges en PVC-U, PP et PE

Ta slovenski standard je istoveten z: **FprCEN/TS 14541**

ICS:

23.040.20	Cevi iz polimernih materialov	Plastics pipes
23.040.45	Fitingi iz polimernih materialov	Plastics fittings

kSIST-TS FprCEN/TS 14541:2012 **en,fr,de**

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

FINAL DRAFT
FprCEN/TS 14541

July 2012

ICS 23.040.20; 23.040.45

Will supersede CEN/TS 14541:2007

English Version

Plastics pipes and fittings - Characteristics for utilisation of non-virgin PVC-U, PP and PE materials - Complementary element

Tubes et raccords en plastique - Caractéristiques pour l'utilisation de matières non vièrges en PVC-U, PP et PE

Kunststoffrohrleitungen und Formstücke - Eigenschaften für die Verwendung von Rücklaufmaterial und Recyclat aus PVC-U-, PP- und PE-Materialien - Ergänzendes Element

This draft Technical Specification is submitted to CEN members for formal vote. It has been drawn up by the Technical Committee CEN/TC 155.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic 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 United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a Technical Specification. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a Technical Specification.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. FprCEN/TS 14541:2012: E

Contents

Page

Foreword 3

1 Scope 4

2 Normative references 4

3 Terms, definitions and abbreviations 5
3.1 Terms and definitions 5
3.2 Abbreviations 5

4 Utilization of non-virgin material for non-pressure application 6
4.1 Own reprocessed material 6
4.2 External reprocessed and recycled materials with agreed specification 6
4.3 External reprocessed and recycled materials without agreed specification 6

5 Utilization of non-virgin material for pressure application 9
5.1 Own reprocessed material 9
5.2 External reprocessed and recycled materials with agreed specification 9
5.3 External reprocessed and recycled materials without agreed specification 9

6 General guidance for utilization of non-virgin material 10

Bibliography 11

Foreword

This document (FprCEN/TS 14541:2012) has been prepared by Technical Committee CEN/TC 155 “Plastics piping systems and ducting systems”, the secretariat of which is held by NEN.

This document is currently submitted to the Formal Vote.

This document will supersede CEN/TS 14541:2007.

The main changes are:

— definitions brought in line with common practice;

— application “Pressure piping systems” is introduced:

— a general guidance has been added for utilization of non-virgin materials:

— Annex A “Processing and performance of pipes and characteristics of recyclable material” is deleted.

1 Scope

This Technical Specification specifies definitions and recommended characteristics and test methods for the utilisation of PVC-U, PP and PE non-virgin materials in pipes, fittings and ancillaries for both pressure and non-pressure piping systems.

This Technical Specification specifies the conditions for utilisation of non-virgin material with and without agreed specification

Non-virgin materials may be reformulated by the use of additives and processing techniques to meet an agreed specification. Typically the additives used would be stabilisers and pigments etc.

The WG responsible for the product standard should seriously consider the content of this document and only permit dosage levels which give compliance with the requirements of the product standard. Further, the WG should seriously consider whether extra or more frequent product testing is relevant when using such material in the production of pipes and fittings in accordance with the relevant product standard.

NOTE For the purpose of this specification the term pipes means extruded pipes, gutters and any parts of a fabricated fitting which is made from an extruded pipe. The term fitting means injection- and rotomoulded fittings and injection moulded parts of a fabricated fitting.

For the recycling process, the testing and the use of the non-virgin material National and/or European regulations may apply.

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 727, *Plastics piping and ducting systems — Thermoplastics pipes and fittings — Determination of Vicat softening temperature (VST)*

EN 12099, *Plastics piping systems — Polyethylene piping materials and components — Determination of volatile content*

EN 10204:2004, *Metallic products — Types of inspection documents*

EN 15346:2007, *Plastics — Recycled Plastics — Characterisation of poly(vinyl chloride) (PVC) recyclates*

EN ISO 13229, *Thermoplastics piping systems for non-pressure applications — Unplasticized poly(vinyl chloride) (PVC-U) pipes and fittings — Determination of the viscosity number and K-value (ISO 13229)*

EN ISO 1133-1, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method (ISO 1133-1)*

EN ISO 1133-2, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 2: Method for materials sensitive to time-temperature history and/or moisture (ISO 1133-2)*

EN ISO 1183-2, *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density gradient column method (ISO 1183-2)*

EN ISO 3451-1:2008, *Plastics — Determination of ash — Part 1: General method (ISO 3451-1:2008)*

EN ISO 3451-5, *Plastics — Determination of ash — Part 5: Poly(vinyl chloride) (ISO 3451-5)*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
virgin material
material in the form such as granules or powder that have not been subjected to use or processing other than that required for their manufacture and to which no reprocessed or recycled material have been added

3.1.2
own reprocessed material
material prepared from rejected unused pipes, gutters, fittings and ancillaries, including trimmings from the production, that will be reprocessed in a manufacturer's plant after having been previously processed by the same manufacturer by a process such as moulding or extrusion and for which the complete formulation is known

3.1.3
external reprocessed material
material from the production of unused thermoplastic products, regardless of where they are manufactured

3.1.4
recycled material
material from used thermoplastic products which have been cleaned and crushed or ground

3.1.5
agreed specification
specification of the relevant material characteristics agreed between the supplier of the non-virgin material and the pipe, fitting and/or ancillary manufacturer

3.2 Abbreviations

PE : polyethylene

PP : polypropylene

PP-MD : polypropylene modified by minerals

PVC-U : unplasticized poly(vinyl chloride)

MFR : melt mass-flow rate

OIT : oxidation induction time

4 Utilization of non-virgin material for non-pressure application

4.1 Own reprocessed material

The use of clean, own reprocessed material for the production of pipes, gutters, fittings and ancillaries shall be permitted without limitations unless otherwise specified in the referring standard.

4.2 External reprocessed and recycled materials with agreed specification

External reprocessed and recycled material with an agreed specification shall be permitted for the production of pipes, gutters, fittings and ancillaries provided that all the following conditions are met:

— it shall at least cover the characteristics given in Tables 1, 2 and 3 for PVC-U, PP/PP-MD and PE, respectively.

— when determined in accordance with the test methods given in Tables 1, 2 and 3 for PVC-U, PP/PP-MD and PE, the actual values from these characteristics shall conform to the values given in the agreed specification.

— each delivery shall be covered by a declaration according to 4.1 of EN 10204:2004, showing conformity to the agreed specification by Inspection certificate 3.1, "type3.1". This declaration can be made by either the material supplier or the product manufacturer as agreed between the parties. The quality plan of the supplier of external reprocessed or recycled material should conform to EN ISO 9001[1].

4.3 External reprocessed and recycled materials without agreed specification

The use of clean external reprocessed and recycled materials without agreed specification for the production of pipes, gutters, fittings and ancillaries shall not be permitted unless otherwise specified in the referring standard.

Table 1 — Material characteristics of recycled PVC-U that should be included in the agreed specification

Characteristic	Unit	Test method [a]	Remark
Density	% by mass	EN ISO 1183-2	
Filler content by ash rest	% by mass	EN ISO 3451-5	Linked to PVC content
K-value		EN ISO 13229	
Vicat softening temperature	°C	EN 727	
Particle size	mm	Sieve analysis	
Type of pigments and stabiliser		By analysis	
Impurities		Annex C of EN 15346:2007 or evaluation of sheets or evaluation of micronized material	
Extraneous polymers		IR analyses or DSC	Presence

[a] Samples shall be taken from the compounded and palletised or from each individual material batch source. The frequency of sampling shall be agreed between supplier and product manufacturer and where relevant, the certification body.

NOTE When deciding the amount of characteristics to be tested, the frequency with which they have to be tested and the related requirements at least the following should be considered:

1) the recycling process and sources of the material because of risk of impurities;
2) the processing of the material into the end product;
3) the wanted characteristics of the end product;
4) possible limitations of sources for the recyclable material;
5) the intended dosage level of the material.