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# Thermoplastics piping systems for non-pressure applications - Unplasticized poly(vinyl chloride) (PVC-U) pipes and fittings - Determination of the viscosity ist booten and and a second a number and K-value (ISO 13229:2010)



# EESTI STANDARDI EESSÕNA

# NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 13229:2011 sisaldab Euroopa standardi EN ISO 13229:2011 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 13229:2011 consists of the English text of the European standard EN ISO 13229:2011.
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Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 07.09.2011.	Date of Availability of the European standard text 07.09.2011.
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# EUROPEAN STANDARD NORME EUROPÉENNE

# **EN ISO 13229**

**EUROPÄISCHE NORM** 

September 2011

ICS 23.040.20: 91.140.80

Supersedes EN 922:1994

English Version

# 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 13229:2010)

Systèmes de canalisations thermoplastiques pour applications sans pression - Tubes et raccords en poly(chlorure de vinyle) non plastifié (PVC-U) -Détermination de l'indice de viscosité réduite et de la valeur K (ISO 13229:2010)

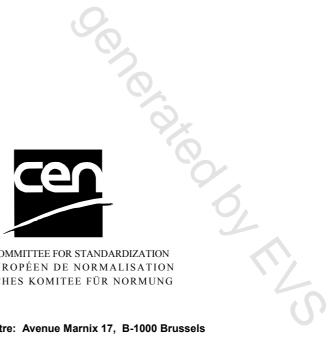
Rohrleitungssysteme aus Thermoplasten für drucklose Anwendungen - Rohre und Formstücke aus weichmacherfreiem Polyvinylchlorid (PVC-U) - Bestimmung der Viskositätszahl und Berechnung des K-Wertes (ISO 13229:2010)

This European Standard was approved by CEN on 11 August 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN ISO 13229:2011: E

# Foreword

The text of ISO 13229:2010 has been prepared by Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 13229:2011 by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems" the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2012, and conflicting national standards shall be withdrawn at the latest by March 2012.

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

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## **Endorsement notice**

The text of ISO 13229:2010 has been approved by CEN as a EN ISO 13229:2011 without any modification.

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

# 1 Scope

This International Standard specifies a method for the determination of the viscosity number (also known as reduced viscosity) and *K*-value of an unplasticized poly(vinyl chloride) (PVC) resin derived from a pipe, fitting or compound.

In this International Standard, only the method for isolation (or separation) of the PVC resin is detailed, while the determination of the viscosity number is given in ISO 1628-2.

The presence of other additives or polymers can invalidate this method (see Clause 3).

# 2 Normative references

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

ISO 1628-2, *Plastics* — *Determination of the viscosity of polymers in dilute solution using capillary viscometers* — *Part 2: Poly(vinyl chloride) resins* 

# 3 Principle

A PVC resin, contained in a sample taken from a pipe, a fitting or a compound, is separated from most additives by dissolution in tetrahydrofuran (THF) and precipitation by methanol from a portion of the solution that has been isolated by centrifuging and decantation. The presence of additives in injection-moulding compounds can affect the results for materials for/from injection-moulded fittings.

If other polymers soluble in THF and insoluble in methanol (e.g. PMMA material) are present, this method shall not be used.

The precipitate is used for estimation of the viscosity number and K-value in accordance with ISO 1628-2.

## 4 Reagents for isolation or separation of the PVC resin

### 4.1 Tetrahydrofuran (THF), stabilized.

WARNING — It is very important for safety reasons that personal protective clothing be used when applying solvents to the test specimen. The use of solvents in regard to application of this International Standard may be further controlled under national and/or regional legislation. In particular, the THF used shall be collected, stored and sent to solvent recovery.

### 4.2 Methanol.