



**SLOVENSKI STANDARD**  
**SIST EN ISO 10931:2006**  
**01-april-2006**

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**Cevni sistemi iz polimernih materialov za uporabo v industriji – Poli(viniliden fluorid) (PVDF) – Zahteve za dele cevovoda in cevni sistem (ISO 10931:2005)**

Plastics piping systems for industrial applications - Poly(vinylidene fluoride) (PVDF) - Specifications for components and the system (ISO 10931:2005)

Kunststoff-Rohrleitungssysteme für industrielle Anwendungen - Polyvinyliden Fluoride (PVDF) - Anforderungen an Rohrleitungsteile und das Rohrleitungssystem (ISO 10931:2005)

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Systemes de canalisations en matieres plastiques pour les applications industrielles - Poly(fluorure de vinylidene) (PVDF) - Spécifications pour les composants et le systeme (ISO 10931:2005)

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**Ta slovenski standard je istoveten z: EN ISO 10931:2005**

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ICS 23.040.01

English Version

Plastics piping systems for industrial applications -  
Poly(vinylidene fluoride) (PVDF) - Specifications for components  
and the system (ISO 10931:2005)

Systèmes de canalisations en matières plastiques pour les  
applications industrielles - Poly(fluorure de vinylidène)  
(PVDF) - Spécifications pour les composants et le système  
(ISO 10931:2005)

Kunststoff-Rohrleitungssysteme für industrielle  
Anwendungen - Polyvinyliden Fluorid - Anforderungen an  
Rohrleitungsteile und das Rohrleitungssystem (ISO  
10931:2005)

This European Standard was approved by CEN on 28 November 2005.

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 Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

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## Foreword

This document (EN ISO 10931:2005) has been prepared by Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids" in collaboration with 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 June 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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### Endorsement notice

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The text of ISO 10931:2005 has been approved by CEN as EN ISO 10931:2005 without any modifications.

## ANNEX ZA (informative)

### Relationship between this International Standard and the Essential Requirements of EU Directive 97/23/EC (PED)

By agreement between ISO and CEN, this CEN annex is included in the DIS and the FDIS but will not appear in the published ISO standard.

This International Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide one means of conforming to Essential Requirements of the New Approach Directive 97/23 EC, Pressure Equipment Directive (PED).

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

**Table ZA.1 — Correspondence between this International Standard and Directive 97/23/EC (PED)**

Clauses/subclauses of this International Standard	Essential requirements (Ers) of EU Directive 97/23/EC	Qualifying remarks/Notes
5.2; 8.1; 14	Design for adequate strength	2.2.1
18	Traceability	3.1.5
A.1.2; A.3.1; A.5	Hydrostatic test pressure	3.2.2
5	Materials	4.1, 4.2 a)
14	Design of piping system	6 a), b), c)

**WARNING:** Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

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**Plastics piping systems for industrial  
applications — Poly(vinylidene fluoride)  
(PVDF) — Specifications for components  
and the system**

*Systèmes de canalisations en matières plastiques pour les applications  
industrielles — Poly(fluorure de vinylidène) (PVDF) — Spécifications  
pour les composants et le système*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 10931 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 3, *Plastics pipes and fittings for industrial applications*.

This first edition of ISO 10931 cancels and replaces ISO 10931-1:1997, ISO 10931-2:1997, ISO 10931-3:1996, ISO 10931-4:1997 and ISO 10931-5:1998, of which it constitutes a technical revision.

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## Introduction

This International Standard specifies the characteristics and requirements for a piping system and its components made from poly(vinylidene fluoride) (PVDF) intended to be used for industrial applications, above-ground, by authorities, design engineers, certification bodies, inspection bodies, testing laboratories, manufacturers and users.

At the date of publication of this International Standard, International Standards for piping systems of other plastics used for industrial applications were ISO 15493, for acrylonitrile-butadiene-styrene (ABS), unplasticized poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride) (PVC-C) and ISO 15494, for polybutene (PB), polyethylene (PE), polypropylene (PP).

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# Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF) — Specifications for components and the system

**IMPORTANT** — Requirements for industrial valves are given in this International Standard and/or in other International Standards. Valves may be used with components conforming to this International Standard provided they conform additionally to its relevant requirements. Where existent, national regulations for specific applications (e.g. water treatment) apply. Other application areas are permitted if the requirements of this International Standard and/or applicable national requirements are fulfilled. Relevant regulations in respect of fire behaviour and explosion risk are applicable if applications are envisaged for inflammable media. Components conforming to any of the product standards listed in the Bibliography or to national standards, as applicable, may be used with components conforming to this International Standard, provided they conform to the requirements for joint dimensions and the relevant requirements of this International Standard.

## 1 Scope

This International Standard specifies the characteristics and requirements for components such as pipes, fittings and valves made from poly(vinylidene fluoride) (PVDF), intended to be used for thermoplastics piping systems in the field of industrial applications above-ground.

It is applicable to PVDF pipes, fittings, valves and ancillary equipment, their joints and to joints with components of other plastics and non-plastics materials, depending on their suitability, intended to be used for the conveyance of liquid and gaseous fluids as well as of solid matters in fluids for industrial applications including

- chemical plants,
- industrial sewerage engineering,
- power engineering (cooling and general purpose water),
- electroplating and pickling plants,
- semiconductor industry,
- agricultural production plants, and
- water treatment.

This International Standard is applicable to PVDF piping systems for use at temperatures up to 150 °C. However, for applications above 120 °C, which depend upon the crystalline melting point of the PVDF material, it is advisable to seek the advice of the manufacturer of the component (the components have to withstand the mechanical, thermal and chemical demands to be expected and to be resistant to the fluids to be conveyed).

Characteristics and requirements which are applicable for PVDF in general are covered by the relevant clauses of this International Standard. Those characteristics and requirements which depend on the material used are given in Annex A.