International Standard

ISO 4076

Polyphenylsulfone (PPSU) — Effect of time and temperature on expected strength

Polyphénylsulphone (PPSU) — Influence du temps et de la température sur la résistance attendue

First edition
2025-04

Reference number
ISO 4076:2025(en)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids,* Subcommittee SC 5, *General properties of pipes, fittings and valves of plastic materials and their accessories — Test methods and basic specifications.*

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

In the early 2000s, manufacturers of plastics and multilayer piping systems for hot and cold-water installations began to consider the use of alternative plastics materials beside the widely used metallic materials (e.g. copper alloys or stainless steel) for components and fittings. Before this point, no materials were available which had the high material strengths that are required for fittings and components.

With the market availability of Polyvinylidenefluoride (PVDF), Polysulfone (PSU) and Polyphenylsulfone (PPSU), the option for the use of plastics materials, instead of metallic materials, for fittings and components as part of plastics and multilayer piping systems was made possible, and products mainly produced by injection molding have been introduced into the market.

In the beginning, the design and the calculation for the dimensioning was based on individual ISO 9080 analyses for each individual PVDF/PSU/PPSU compound.

This document has been developed with the intention of aligning the values for the expected strength over the time (reference lines) for PVDF/PSU/PPSU, in order to simplify and unify all design procedures for which the expected strength over the time is needed.

The reference lines for polyphenylsulfone (PPSU) referred to in this document have been agreed upon by a group of experts from ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids,* Subcommittee SC 5, *General properties of pipes, fittings and valves of plastic materials and their accessories —Test methods and basic specifications,* after considering experimental data and have been accepted by the relevant ISO technical committees.

At the date of publication of this document, the following International Standards dealing with plastics and multilayer piping systems for hot and cold water installations have been published:

— ISO 15874 series, *Plastics piping systems for hot and cold water installations — Polypropylene (PP)*

— ISO 15875 series, *Plastics piping systems for hot and cold water installations — Crosslinked polyethylene (PE-X)*

— ISO 15876 series, *Plastics piping systems for hot and cold water installations — Polybutene (PB)*

— ISO 15877 series, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C)*

— ISO 22391 series, *Plastics piping systems for hot and cold water installations — Polyethylene of raised temperature resistance (PE-RT)*

— ISO 21003 series, *Multilayer piping systems for hot and cold water installations inside buildings*