FINAL DRAFT
International Standard

ISO/FDIS 13265

Thermoplastics piping systems for non-pressure underground drainage and sewerage — Joints for buried non-pressure applications — Test method for the long-term sealing performance of joints with elastomeric seals by estimating the sealing pressure

Systèmes de canalisations thermoplastiques pour branchements et collecteurs d'assainissement enterrés sans pression — Assemblages pour applications enterrées sans pression — Méthode d'essai de la performance à long terme des assemblages avec garnitures d'étanchéité en élastomère par l'estimation de la pression d'étanchéité

ISO/TC **138**/SC **1**

Secretariat: **AFNOR**

Voting begins on:
2024-02-28

Voting terminates on:
2024-04-24

Reference number
ISO/FDIS 13265:2024(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 1, *Plastics pipes and fittings for soil, waste and drainage (including land drainage)*.

This second edition cancels and replaces the first edition (ISO 13265:2010), which has been technically revised.

The main changes are as follows:

— the principle of the method has been reviewed and updated;

— the apparatus and procedure have been reviewed and updated;

— the document has been editorially revised.

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.

Thermoplastics piping systems for non-pressure underground drainage and sewerage — Joints for buried non-pressure applications — Test method for the long-term sealing performance of joints with elastomeric seals by estimating the sealing pressure

1 Scope

This document specifies a method for determining the long-term sealing pressure of elastomeric seals in assembled joints for buried non-pressure sewerage plastics piping and ducting systems.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 9967, *Thermoplastics pipes — Determination of creep ratio*

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

EN 681-2, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 2: Thermoplastic elastomers*

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

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

EN 837-1, *Pressure gauges — Part 1: Bourdon tube pressure gauges — Dimensions, metrology, requirements and testing*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Symbols

B	theoretical pressure, in bar[1)] , in the polytetrafluoroethylene (PTFE) tube at t = 1 h
D	drop factor of extrapolated pressure data at 24 h and 100 years
M	gradient of the curve
p	pressure
p_t	pressure measured in the PTFE tube at a flow of 120 ml/min and the time t hours
p_0	initial leakage pressure, in bar, measured in the PTFE tube after completing the assembly
p_{ta}, p_{tb}, p_{tc}	pressure measured in the three PTFE tubes in the tested joint, marked a, b and c, respectively, at time t hours
p_x	extrapolated pressure, in bar, at 100 years
p_y	calculated pressure, in bar, at 24 h
p_{xa}, p_{xb}, p_{xc}	extrapolated pressure, in bar, at 100 years in the three PTFE tubes in the tested joint, marked a, b and c, respectively
$p_{100\ y}$	arithmetic mean value of the pressures obtained for each of the three extrapolated values, p_x, at 100 years
$p_{24\ h}$	arithmetic mean value of the pressures obtained for each of the three calculated values, p_y, at 24 h
R	correlation coefficient
t	time, in hours

5 Principle

The sealing pressure in a joint is estimated by measuring the pressure necessary to lift the seal, in each of three PTFE tubes, unless otherwise specified in other standards, equally distributed over the circumference of a joint located between the rubber seal and the spigot or socket, as appropriate (see Figure 1).

In a temperature-controlled environment and at increasing time intervals, a constant flow rate of 120 ml/min of nitrogen or air is forced through three flexible PTFE tubes.

If it was not possible to keep the pressure constant at 120 ml/min during the measurement, calculate the pressure value, p, at a flow rate of 120 ml/min according to 8.2. For this purpose, the intersection point of the pressure at 120 ml/min shall be read from the recorded pressure/flow curve and this resulting pressure shall be recorded.

The nitrogen or air pressure, p, necessary to achieve this flow, is measured. The pressure, p_t, is measured at increasing time intervals over a period of time. The extrapolated regression lines for p_t are used to calculate the estimated value p_x at 100 years and p_y at 24 h.

1) 1 bar = 0,1 MPa = 10^5 Pa; 1 MPa = 1 N/mm^2.