



BSI Standards Publication

Plastics piping systems for non-pressure underground conveyance and storage of non-potable water — Test method for determination of long-term compression strength of boxes

National foreword

This British Standard is the UK implementation of EN 17151:2019.

The UK participation in its preparation was entrusted to Technical Committee PRI/88/5, Underground infiltration, attenuation and storage systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

It is the committee's opinion that Note a of Table 1 does not satisfy the requirements of Annex B. To satisfy the requirement of the two decade rule as stated in Annex B, B.1, Point 5, it is necessary to have at least one failed test at over 4 380 hours to be able to extrapolate to 50 years. The committee recommends that the requirements of B.1 be followed.

In addition, it is the committee's opinion that there is a logic error in Note a of Table 1 in that it should specify that the applied load be higher (not lower as stated) than that predicted by the extrapolation of the other data.

The committee recognizes that there is a risk that targeting a test for exactly 4 380 hours' duration might result in the test failing early and not complying with the requirements of the standard. The committee suggests that a strategy of targeting the TDP2 tests as specified in Table 1 to achieve a duration at failure of 4 380 hours, by using slightly different applied loads, improves the probability of achieving the required test durations of more than and less than 4 380 hours. All long-term test results generated can be used to satisfy TDP2 if they rupture.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Published by BSI Standards Limited 2020

ISBN 978 0 580 98565 2

ICS 23.040.01

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 29 February 2020.

Amendments/corrigenda issued since publication

Date	Text affected
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English Version

Plastics piping systems for non-pressure underground conveyance and storage of non-potable water - Test method for determination of long-term compression strength of boxes

Systèmes de canalisations en plastique pour le transport et le stockage souterrains sans pression de l'eau non potable - Méthode d'essai pour la détermination de la résistance à la compression à long terme des structures alvéolaires ultra-légères

Kunststoff-Rohrleitungssysteme für die drucklose unterirdische Entwässerung für Nicht-Trinkwasser - Prüfverfahren zur Bestimmung der Langzeitdruckfestigkeit von Versickerungsblöcken

This European Standard was approved by CEN on 19 October 2018.

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European foreword

This document (EN 17151:2019) has been prepared 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 February 2020, and conflicting national standards shall be withdrawn at the latest by February 2021.

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Introduction

This standard is intended to reflect the current state of knowledge of determining and predicting the long-term lifetime of products mentioned in the scope while maintaining reasonable testing times for producers and developers of these systems.

The products covered by this standard are part of storm water management systems.

CEN TC 155 is aware that these products are used in modular systems and that the long term compression strength determined by this standard applies to a single box and might not reflect the maximum allowable loads on an installed system.

Linearity is assumed to extrapolate the (log) load versus log time curve from the results of the creep rupture tests. The test described in Annex A is intended to demonstrate linearity over the extrapolated lifetime by testing at elevated temperatures.

This test is given as an informative annex due to limited practical experience and lack of reliability analyses. CEN TC 155 wants to encourage stakeholders to perform these tests before the next revision.

NOTE Linear behaviour of the boxes can be assumed when the difference in the slope between creep tests performed at 20 °C and at 70 °C as described in Annex A is small and therefore there has been no deviation from linear behaviour.

The test method follows the principles of ISO 9080 [1] and applies them to the testing of boxes.

CEN TC 155 is aware that including a not failed data point at 4 380 h in the calculation of LCL would bias the outcome in the lower 95 % confidence level (*LCL*) for the stress leading to a failure at 50 years.