INTERNATIONAL STANDARD

ISO 7509

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Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of time to failure under sustained internal pressure

Systèmes de canalisations en plastiques — Tubes en plastiques thermodurcissables renforcés de verre (PRV) — Détermination du temps mis jusqu'à la défaillance sous une pression interne constante

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 7509 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 6, *Reinforced plastics pipes and fittings for all applications*.

Introduction

This International Standard describes a method for determining the time to failure under sustained internal pressure of glass-reinforced thermosetting plastics (GRP) pipes.

The method uses the following conditions:

— water as the reference liquid inside the test piece;

— air (method A) or water (method B) as the environment outside the test piece.

The method can be used for tests at different temperatures. It should be noted that, for a given temperature, the results obtained can differ depending on the end-sealing device and whether the external environment is water or air.

The method described in this International Standard differs from those in some other similar standards in the following details:

— the failure criteria and the detection of failure;

— the strain in the longitudinal and circumferential directions may be measured during the test;

— the test pressure is maintained constant.

This method may be used to obtain data to establish internal pressure versus time-to-failure relationships at different temperatures. The procedures for establishing the relationships are not within the scope of this International Standard. For such purposes attention is drawn to ISO 10928.

Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of time to failure under sustained internal pressure

1 Scope

This International Standard specifies a method for determining the time to failure of glass-reinforced thermosetting plastics (GRP) pipes under internal hydrostatic pressure at a specified temperature. The external environment may be air (method A) or water (method B).

NOTE For other internal or external environments, the referring standard should specify any additional requirement.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 10928, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Methods for regression analysis and their use*.

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

3.1

failure

occurrence of bursting, leaking, weeping or pressure loss

3.2

bursting

rupture of the pipe wall with immediate loss of water

3.3

leaking

transmission of water through the wall of a test piece to an extent detectable visually

3.4

pressure loss

continuous loss of pressure of greater than 2 % per hour of the set pressure when measured over two consecutive hours on an isolated (e.g. non-pressure-adjusted) test specimen