
Plastics piping systems — Glass-reinforced plastics (GRP) components — Determination of the amounts of constituents

Systèmes de canalisations en matières plastiques — Composants plastiques renforcés de verre (PRV) — Détermination des teneurs des constituants

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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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.

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 documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation on 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 the following URL: 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 6, *Reinforced plastics pipes and fittings for all applications*.

This second edition cancels and replaces the first edition (ISO 7510:1997), which has been technically revised.

The main changes compared to the previous edition are as follows:

- modified the title;
- clarified accuracy statements;
- eliminated specific sample size;
- referenced ISO 3126 for dimension determination;
- allowed use of test specimens taken from mechanical property test samples.

Plastics piping systems — Glass-reinforced plastics (GRP) components — Determination of the amounts of constituents

1 Scope

This document specifies a method for the determination of constituent materials of a test sample cut from a glass-reinforced plastics (GRP) component intended for use in a piping system. It includes determination of resin, glass, aggregate and filler contents.

It is also applicable to the determination of the type and arrangement of the reinforcements. If used to determine the amounts of constituent materials in layered constructions it may be necessary to separate the laminate layers by cutting or splitting and testing each separately.

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 3126, *Plastics piping systems — Plastics components — Determination of dimensions*

3 Terms and definitions

No terms and definitions are listed in this document.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Principle

A test piece of known size and mass is ignited to burn off the resin, and the residue analysed by separating and weighing the constituents [loss on ignition (LOI) is a common term for such testing]. If the construction includes organic reinforcements, such as surfacing veils, or processing aids, such as thermoplastic mesh or filaments, these will be burned off with the resin. Typically such materials if used are in small amounts and will not introduce significant error in the determination of raw material contents. Also, organic materials used in glass fibre reinforcement sizing or binder will be burned off. The amounts of such materials are very small.

NOTE 1 In the case of filled laminates, especially those containing fillers of small particle size (including thixotropic agents), accurate analysis of the constituents can prove difficult. This is because of the difficulty in separating such fillers from the other constituents and the risk of some filler being lost during combustion.

This test method can be used to determine and monitor the fibre architecture of the laminate layers used in the piping component.

NOTE 2 It is assumed that the following testing parameters are set by the referring standard:

- a) whether or not the types of glass fibre reinforcement in the constituent layers is to be determined;
- b) whether or not the glass content of each layer is to be determined;