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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 29165.2-2022

Replacing GB/T 29165.2-2012

**Petroleum and natural gas industries - Glass-reinforced plastics
(GRP) piping - Part 2: Qualification and manufacture**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules for Standardization Documents" drafting.

This document is Part 2 of GB/T 29165 "Glass Fiber Reinforced Plastic Pipes for Oil and Gas Industry". GB/T 29165 has

The following parts were released.

- Part 1. Vocabulary, symbols, applications and materials;
- Part 2. Evaluation and manufacture;
- Part 3. System Design;
- Part 4. Assembly, installation and operation.

This document replaces GB/T 29165.2-2012 "Glass Fiber Reinforced Plastic Pipes for Petroleum and Natural Gas Industry - Part 2. Evaluation and Preparation

Compared with GB/T 29165.2-2012, except for structural adjustment and editorial changes, the main technical changes are as follows.

- a) The manufacturer's declaration is added (see Chapter 4);
- b) The structural material and wall thickness requirements are deleted (see Chapter 5 of the.2012 edition);
- c) Changed the assessment procedure (see Chapter 5, Chapter 6 of the.2012 edition);
- d) Added reassessment (see Chapter 6);
- e) Deleted the recommended size (see Chapter 7 of the.2012 edition);
- f) Changed the quality procedures of the manufacturing process (see Chapter 7, Chapter 8

of the.2012 edition);

g) Changed the component mark (see Chapter 8, Chapter 9 of the.2012 edition);

h) Some content in the document has been deleted (see Chapter 10, Chapter 11 of the.2012 edition);

i) Deleted the failure envelope, the revision of the combustion reaction test method, the determination method of the electrostatic performance of GRP piping system components, and the derivation

recommended size, and the least squares method for calculating long-term hydrostatic pressure based on regression data (see Appendix C, Appendix F~Appendix of the.2012 edition

H, Appendix K);

j) Added slope and temperature limits (see Appendix A);

k) Added long-term envelope data points (see Appendix B);

l) Increased survival test (see Appendix C);

m) Added scaling rules (see Appendix D);

n) Added representative products (see Appendix E);

o) Increased flange evaluation (see Appendix F);

p) Increased main Poisson's ratio (see Appendix G);

q) Part of the content of the fire resistance test has been changed (see Appendix H, Appendix E of the.2012 edition);

r) Added alternative material assessment (see Appendix I);

s) Added visual inspection (see Appendix J).

This document is equivalent to ISO 14692-2:2017 "Glass fiber reinforced plastic pipes for the oil and gas industry - Part 2.Evaluation and preparation make".

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Glass fiber reinforced plastic pipe is a composite material with glass fiber reinforced unsaturated polyester, epoxy resin and phenolic resin as matrix materials.

Plastic pipes are widely used in the oil and gas industry. In order to standardize the design,

manufacture, evaluation and operation of glass fiber reinforced plastic pipes

A series of technical documents for glass fiber reinforced plastic pipes in the oil and gas industry have been formulated. GB/T 29165 "Oil and Natural Gas Industrial Glass

Fiber Reinforced Plastic Pipe" aims to provide the oil and gas industry with the basic terms, materials, evaluation,

Standards for manufacture, design, assembly, installation and operation. According to the characteristics of each stage of the full service cycle of glass fiber reinforced plastic pipes, such as application and

Materials, evaluation and manufacture, system design, assembly, installation and operation, GB/T 29165 consists of four parts.

--- Part 1.Vocabulary, symbols, applications and materials. The purpose is to provide information on basic terminology and notation for the remaining three sections, and to

Applications and materials are specified and required.

--- Part 2.Evaluation and manufacture. The purpose is to guide the system design, assembly of glass fiber reinforced plastics (GRP), and to provide

Quality requirements for assessing and manufacturing products.

--- Part 3.System Design. The aim is to provide a system design for the entire glass fiber reinforced plastic (GRP) piping system piping.

--- Part 4.Assembly, installation and operation. The purpose is to provide construction parties and users of glass fiber reinforced plastic (GRP) systems

refer to.

Compared with traditional metal materials and other non-metal material pipes, glass fiber reinforced plastic pipes have high strength, good performance, and product design

The degree of freedom is large, and the product has a wide range of applications. This document combines the specific use of glass fiber reinforced plastic pipes in the petroleum industry.

According to the characteristics of each stage of its life cycle, it can guide all parties including the designer, manufacturer, construction party and user to provide glass

The application of fiber-reinforced plastic pipes in the petroleum industry provides a complete system solution to ensure the safety regulations of products in the petroleum industry

use.

Fiberglass reinforced plastic pipes for the oil and gas industry

Part 2. Evaluation and manufacture

1 Scope

This document specifies the quality assessment and manufacturing requirements for glass fiber reinforced plastic (GRP) pipes and fittings.

This document applies to quality assessment, size selection, quality control procedures, marking of pipe body components and documentation of GRP products.

This document is used in conjunction with GB/T 29165.1.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

ISO 834-1 Fire resistance tests Building elements Part 1. General requirements (Fire-resistance tests - Elements of

Note. GB/T 9978.1-2008 Fire resistance test methods for building components Part 1. General requirements (ISO 834-1.1999, MOD)

ISO 1172 Determination of glass fabric and mineral filler content in preregs, molding compounds and laminates of glass fabric reinforced plastics

of the textile-glass and mineral-filler content calculation methods)

Note. GB/T 2577-2005 Test method for resin content of glass fiber reinforced plastics (ISO 1172.1996, MOD)

Note. GB/T 14520-1993 Determination of residual styrene monomer content in unsaturated polyester resin reinforced plastics by gas chromatography (ISO 4901.

1985, NEQ)

ISO 11357-2 Plastics Differential Scanning Calorimetry (DSC) Part 2. Determination of Glass Transition Temperature [Plastics - Dif-

Note. GB/T 19466.2-2004 Plastic Differential Scanning Calorimetry (DSC) Part 2. Determination of Glass Transition Temperature (ISO 11357-2.

1999, IDT)