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

GB/T 48043.3-2026

**Thermoplastics piping systems-Preliminary evaluation of the resistance to
chemicals-Part 3: Unplasticized poly(vinyl chloride) (PVC-U), high-impact
poly(vinylchloride) (PVC-HI) , modified poly(vinylchloride) (PVC-M), oriented
poly(vinylchloride) (PVC-O) and chlorinated poly(vinyl chloride) (PVC-C) piping
components**

热塑性塑料管道系统 耐化学性初步评价 第3部分：硬聚氯乙烯(PVC-U)、高抗冲
聚氯乙烯(PVC-HI)、改性聚氯乙烯(PVC-M)、取向聚氯乙烯(PVC-O)和氯化聚氯乙
烯(PVC-C)管道及部件

(English Translation)

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Table of Contents

- Foreword
- Introduction
- 1 Scope
- 3 Terms and Definitions
- 4 Symbols
- 5 Principles

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 3 of GB/T 48043 "Preliminary evaluation of chemical resistance of thermoplastic piping systems". GB/T 48043 has been...

The following sections have been published.

---Part 1: Test Methods;

---Part 3: Rigid Polyvinyl Chloride (PVC-U), High-Impact Polyvinyl Chloride (PVC-HI), Modified Polyvinyl Chloride (PVC-M), Oriented Polyvinyl Chloride Vinyl chloride (PVC-O) and chlorinated polyvinyl chloride (PVC-C) pipes and components;

---Part 4: Fluoropolymer Pipes and Components.

This document is modified to adopt ISO 4433-3:1997 "Thermoplastic pipes - Classification of resistance to liquid chemical media - Part 3: Rigid polyvinyl chloride".

Ethylene (PVC-U), high-impact polyvinyl chloride (PVC-HI), and chlorinated polyvinyl chloride (PVC-C) pipes.

This document has undergone the following structural adjustments compared to ISO 4433-3:1997.

---Chapter 3 has been added.

The technical differences between this document and ISO 4433-3:1997, and the reasons therefor, are as follows.

---Added warnings to improve operability;

--- "Rigid polyvinyl chloride (PVC-U), high-impact polyvinyl chloride (PVC-HI), and chlorinated polyvinyl chloride (PVC-C) pipes" has been changed to "rigid polyvinyl chloride pipes".

Vinyl chloride (PVC-U), high-impact polyvinyl chloride (PVC-HI), modified polyvinyl chloride (PVC-M), oriented polyvinyl chloride (PVC-O), and the section on "Chlorinated Polyvinyl Chloride (PVC-C) Pipes and Components" (see Chapter 1) is more in line with the actual application scope of this document.

---The term "thermoplastic pipes" has been changed to "thermoplastic pipes, fittings, sheets/plates and valve components" (see Chapter 1) for better accuracy.

The practical application scope of this document;

---A visual inspection has been added (see 6.1) to conform to my country's national conditions;

---The permissible limits, grading charts, and formula descriptions in the tables (see 6.2~6.5) have been revised to adapt to my country's technical conditions and to increase the permissible limits.

Operability;

---The chemical resistance grading and evaluation have been revised (see Chapter 7) to improve operability;

---Added "c) Sample preparation method and specimen size" (see Chapter 8), improving the test results information and increasing operability;

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China National Light Industry Council.

This document is under the jurisdiction of the National Technical Committee on Standardization of Plastic Products (SAC/TC48).

Introduction

GB/T 48043, "Preliminary Evaluation of Chemical Resistance of Thermoplastic Piping Systems," aims to standardize the chemical resistance of thermoplastic piping systems.

Evaluation methods.

GB/T 48043, "Preliminary Evaluation of Chemical Resistance of Thermoplastic Piping Systems", is proposed to include five parts.

---Part 1: Test Methods. The aim is to establish preliminary evaluation methods for the chemical resistance of plastic pipes and components.

---Part 2: Polyolefin Pipes and Components. The aim is to establish grading criteria and initial...

Step-by-step evaluation method.

---Part 3: Rigid Polyvinyl Chloride (PVC-U), High-Impact Polyvinyl Chloride (PVC-HI), Modified Polyvinyl Chloride (PVC-M), Oriented Polyvinyl Chloride Grading criteria and preliminary evaluation methods for the chemical resistance of components.

---Part 4: Fluoropolymer Pipes and Components. The purpose is to establish the chemical resistance of pipes and components made of the aforementioned materials.

Level criteria and preliminary evaluation methods.

---Part 5: Rigid Polyamide (PA-U) Pipes and Components. The purpose is to establish the chemical resistance classification of rigid polyamide pipes and components.

Level criteria and preliminary evaluation methods.

Preliminary evaluation of the chemical resistance of thermoplastic pipe systems Part 3: Rigid Polyvinyl Chloride (PVC-U), High Impact Polyvinyl Chloride Vinyl chloride (PVC-HI), modified polyvinyl chloride (PVC-M) Oriented polyvinyl chloride (PVC-O) and chlorinated polyvinyl chloride (PVC-C) pipes and components Warning---Personnel using this document should have practical experience working in a formal laboratory. This document does not address all possible safety issues.

Users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national laws and regulations.

1 Scope

This document specifies the preliminary evaluation method for the chemical resistance of PVC-U, PVC-HI, PVC-M, PVC-O, and PVC-C pipes and components.

Laws and classification criteria.

This document applies to the preliminary evaluation of pipes, fittings, plates/sheets, or valve components of the aforementioned materials under no-pressure or no-stress conditions (such as those not exposed to soil).

The suitability for transporting chemical media under load, no dynamic stress, and internal stress conditions.

This document does not apply to the evaluation of non-plastic parts such as metal or rubber (if any) in the above components. Fiberglass reinforced PVC pipes and tubing.

This document can be used as a reference for the execution of parts, plates/sheets or valve components.

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 1040.1 Determination of tensile properties of plastics - Part 1: General principles
GB/T 8804.1 Determination of tensile properties of thermoplastic pipes - Part 1: General test methods
GB/T 48043.1-2026 Preliminary evaluation of chemical resistance of thermoplastic piping systems - Part 1: Test methods

3 Terms and Definitions

The terms and definitions defined in GB/T 1040.1 and GB/T 8804.1 apply to this document.

4 Symbols

The symbols defined in GB/T 48043.1-2026 and the following symbols apply to this document.

L. Limited resistance to corrosion

5 Principles

Under normal pressure, a specific chemical medium is used to react the components derived from rigid polyvinyl chloride (PVC-U), high-impact polyvinyl chloride (PVC-HI), and modified polyvinyl chloride.