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

GB/T 48043.2-2026

**Thermoplastic piping systems - Preliminary evaluation of the
resistance to chemicals - Part 2: Polyolefin piping components**

热塑性塑料管道系统 耐化学性初步评价 第2部分：聚烯烃管道及部件

(English Translation)

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Table of Contents

- Foreword
- Introduction
- 1 Scope
- 2 Normative references
- 3 Terms and Definitions
- 4 Abbreviations and Symbols

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 2 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 2: Polyolefin Pipes and Components;

---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;

This document is modified to adopt ISO 4433-2:1997 "Thermoplastic pipes - Classification of resistance to liquid chemical media - Part 2: Polyolefins".

Pipes.

This document has undergone the following structural adjustments compared to ISO 4433-2:1997.

---Chapters 3 and 4 have been added.

The technical differences between this document and ISO 4433-2:1997, and the reasons therefor, are as follows.

---The specific descriptions of the S, L, and NS levels have been removed and moved to the section on chemical resistance grading and evaluation for clearer explanation;

- The principle has been revised for greater conciseness (see Chapter 5);
- Appearance inspection has been added to conform to my country's national conditions (see 6.1);
- The format of the hierarchical diagram has been changed to align with the latest international standards (see 6.2~6.7);
- Added a chemical resistance grading table, grading and evaluation to suit my country's national conditions (see Chapter 7).

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 Vinyl chloride (PVC-O) and chlorinated polyvinyl chloride (PVC-C) pipes and components. The purpose is to establish the pipes made of the above materials and their...

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 2: Polyolefin 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.

1 Scope

This document specifies a preliminary evaluation method for the chemical resistance of polyolefin pipes and components.

This document applies to polyolefin pipes and components under no-pressure or no-stress conditions (e.g., without soil load, dynamic stress, or internal stress).

A preliminary evaluation of its suitability for transporting chemical media.

This document also applies to polyolefin boards/sheets.

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 polyolefin pipes and components are acceptable.

Please refer to this document for instructions.

2 Normative references

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 Abbreviations and Symbols

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

L. Limited resistance to corrosion Under normal pressure, samples taken from polyolefin pipes and components were immersed in a specific chemical medium, and the mass of the samples before and after immersion was measured.

Changes in quantity and tensile properties. Generally, these changes depend on soaking time and soaking temperature. The specific soaking time will affect the resulting changes.

Based on the aforementioned degree of performance change, the chemical resistance of materials is initially divided into S (corrosion resistance), L (limited corrosion resistance), and NS (non-corrosion resistance).