

ICS 83.140.30

CCS G 33



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

GB/T 13663.2-2018

**Polyethylene (PE) piping systems for water supply -- Part 2:
Pipes**

Issued on: March 15, 2018

Implemented on: October 1, 2018

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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Foreword

GB/T 13663 "PE for the water supply (PE) pipe system" is divided into five parts.

--- Part 1. General;

--- Part 2. Pipes;

--- Part 3. Fittings;

--- Part 4. Valves;

--- Part 5. System suitability.

This part is part 2 of GB/T 13663.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

GB/T 13663 part 1 and this part together replace GB/T 13663-2000 "water supply polyethylene (PE) pipe", and

Compared with GB/T 13663-2000, the main technical content changes as follows.

--- This section deletes the pipe material made of PE63 material, only the pipe material made of PE80 and PE100 material (this part

Chapter 1);

--- Increased the maximum working pressure is not greater than 2.0MPa and the reference working temperature is 20 °C (Part 1 of this section);

--- Increase the nominal diameter of the pipe range, increase the pipe nominal diameter from 1000mm to 2500mm (Part 1 of this section

chapter);

--- Move the relevant contents of terms, definitions, symbols and abbreviations into Chapter 3 of GB/T 13663.1-2017;

--- Revised the classification and naming of polyethylene blends, removed the classification and nomenclature of PE63 grades and added

The 80 °C long-term hydrostatic strength curve of the ingredients does not allow the requirement of turning point before 5000h ($t < 5000h$) (this part

4.2);

--- Removed the basic performance requirements of the material, adjusted to GB/T 13663.1-2017;

--- Increased the provisions of the use of color mixing strips (section 4.3);

--- Modify the requirements of recycled materials (4.4 in this section);

--- Increased product classification requirements (Chapter 5 of this section);

--- Removed other uses of water pipe color and related content of pipes exposed in the sun, added the blue pipe only for dark

Apply (this section 6.2.2);

--- Modify the limit deviation of the pipe length, the provisions of the length should not have a negative deviation (section 6.3.1.1);

--- Increased the scope of the nominal diameter of the pipe, modified the requirements of the average diameter of the pipe; Adjust the roundness of the pipe from Appendix A to Table 2

(This section 6.3.2);

--- Increased pipe shrinkage provisions (section 6.3.2);

--- Commonly used SDR series has added SDR9 and SDR41 and added pipe series (Section 6.3.3.1);

--- Modify the requirement of wall thickness tolerance at any point (Section 6.3.3.2);

--- The polyethylene pipe system temperature pressure reduction adjustment to GB/T 13663.1-2017 Appendix C;

--- Removed the relevant requirements for PE63 grade pipe hydrostatic strength. Tube hydrostatic strength (20°C, 100h) test parameters

The PE80 ring stress was modified from 9.0 MPa to 10.0 MPa, and the PE100 ring stress was modified from 12.4 MPa to 12.0 MPa.

Hydraulic Strength (80°C, 165h) Test Parameters PE80 Ring Stress was Modified from 4.6MPa to 4.5MPa, PE100 Ring Stress

5.5MPa modified to 5.4MPa (this section 6.4.1);

--- Modify the corresponding relationship between ring stress/minimum failure time in Table 6 (this section 6.4.2);

---The physical and mechanical properties of the pipe increase the melt flow rate, carbon black content, carbon black dispersion/pigment dispersion, ash content, and wall thickness

In 12mm pipe elongation and resistance to slow crack growth requirements (Part 6.5);

--- Modify the test parameters and requirements for oxidation induction time of pipes from "200 °C, $\geq$ 20min" to "210 °C, $\geq$ 20min" (Part 1

Points 6.5);

--- Physical and mechanical properties of the pipe removed from the weathering requirements, and adjusted to GB/T 13663.1-2017 Chapter 4 Table 3;

--- Increased chemical resistance requirements (Section 6.7);

--- Increased system suitability requirements (Section 6.8);

--- Modify the relevant requirements of the test method (Chapter 7 of this section);

--- Increased control point inspections in inspection categories (section 8.1);

--- Modify the pipe group batch and grouping requirements (this section 8.2);

--- Factory inspection items increase the melt flow rate (section 8.3.1);

--- The sampling plan of the factory inspection was revised to "take general inspection level I and acceptance quality limit (AQL) 4.0" (section 8.3.2 in this section);

--- Increased the relevant requirements of control point inspection (this section 8.4);

--- Modify the requirements for the selection of pipe specifications for type inspection (this section 8.5.1);

--- Modified test items for type inspection (this section 8.5.2);

--- Type inspections have increased the requirement of "general inspections carried out once every three years for type inspections" and will "recover production after long-term production shutdowns."

"Production time" was revised to "When the production of a product ceases production for more than one year when the production is resumed", the "national quality supervision agency proposes to carry out type inspection" is deleted.

When required ((section 8.5.4));

---Modified the requirements of the decision rule, adding "If there is a hygiene requirement, one of the health indicators is unqualified as a substandard batch" (this

Section 8.6);

--- Revised logo requirements (Chapter 9 of this section);

--- Addition of the requirements for mixed ingredients, pipe batch numbers and reusable

material marks in the content of the marks, and addition of examples of marks (this part 9.5);

--- Modify the packaging requirements, an increase of "in the packaging, labels or signs should be stated on the name of the plant, the site" (this section 10.1);

--- Deleted the stacking height must not exceed 1.5m;

--- Added an informative appendix "This part of the structure changes compared with ISO 4427-2.2007" (Appendix A of this section);

--- Added the informative appendices "This part of the technical differences with ISO 4427-2.2007 and its causes" (Appendix B of this section);

--- Increased the normative appendix "with peelable layer pipe" (Appendix C of this section);

--- Added an informative appendix "High-tolerance crack growth performance of PE100 mixed ingredients and pipes" (Appendix D of this section);

--- Added an informative appendix "Relationship between PN, MRS, S, and SDR" (Appendix E to this section).

This section uses the redrafted method to amend the ISO 4427-2.2007 "Plastic Pipe System Water Supply Polyethylene (PE) Pipes and Pipes

Part 2. Pipes."

This part has more adjustments in structure than ISO 4427-2.2007. Appendix A lists the chapter number and

ISO 4427-2.2007 Article Numbering Control List.

This part has technical differences compared with ISO 4427-2.2007. Relevant differences have been incorporated into the text and in the terms to which they relate

The margins are marked with a vertical single line (|). A list of these technical differences and their causes is given in Appendix B.

1 Scope

This part of GB/T 13663 specifies the use of polyethylene (PE) mixed ingredients as raw materials, extrusion molding of polyethylene pipes for water supply (below

Abbreviation "pipe") Terms and definitions, symbols, abbreviations, materials, product classification, requirements, test methods, inspection rules, signs, packaging, transportation,

Storage.

This part, together with other parts of GB/T 13663, applies to water temperatures not