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

GB/T 24259-2023

Replacing GB/T 24259-2009

**Petroleum and natural gas industries - Pipeline transportation
systems**

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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 replaces GB/T 24259-2009 "Pipeline Conveying System for Oil and Natural Gas Industry" and is consistent with GB/T 24259-2009.

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Changed the scope of application of the document (see Chapter 1, Chapter 1 of the.2009 edition);
 - b) The terms and definitions of "design strength", "assembly", "pressure opening", "pipe laying route" and "minimum tensile strength specified for pipeline" are deleted.
- Righteousness (see Chapter 3 of the.2009 edition);
- c) Added a chapter on "Symbols" (see Chapter 4);
 - d) Changed the "Classification of Fluids", changing carbon dioxide to toxic fluid (see 6.2, 5.2 of the.2009 version);
 - e) Changed the note in "Hydraulic Analysis" and changed it to a clause. (See 6.3, 5.3 of the.2009 edition);

f) Delete "When the requirements of relevant national public safety and environmental protection regulations are higher than the requirements of this standard, the relevant national regulations shall be followed."

implement. When there are no special requirements, the requirements of this standard for public safety and environmental protection should be adopted. " (See the.2009 edition of 5.6);

g) Added factors that should be evaluated when selecting lines (see 7.2.1.1);

h) Added requirements for specifying the maximum design temperature and minimum design temperature (see 7.3.2.3);

i) Added goaf load and frozen soil load (see 7.3.3.4);

j) The calculation formulas for the maximum hoop stress and equivalent stress caused by fluid pressure have been changed (see 7.4.2.2,.2009 version

6.4.2.2);

k) Added calculation formulas and related explanations for ovality or out-of-roundness (see 7.4.2.5);

l) Added allowable strain criteria (see 7.4.2.6);

m) Added SBD pipe and weld material properties (see 7.4.2.7);

n) Added technical requirements for covering layers that need to be considered separately for frost heave areas (see 7.8.2.1);

o) Delete "Welding construction should use operators certified in accordance with ISO 13847 and qualified in the qualification examination." (See.2009 version 6.14.2);

p) Added technical requirements for wrinkles (see 9.3.2);

q) Added "All process wetted parts (metallic and non-metallic) should comply with the design use conditions." (see 9.3.5);

r) Changed the technical requirements for single-layer fused epoxy resin (FBE) coating (see 9.4.1.2, 8.4.1.2 of the.2009 version);

s) Added "Wet insulation for subsea applications shall comply with the requirements of ISO 12736." (see 9.4.1.3);

t) Added "stray current interference sources around pipelines (such as subways, high-voltage lines, etc.)" (see 10.4.1);

u) "Weld inspection" has been changed (see 11.4.2, 10.4.2 of the.2009 version);

- v) Added technical requirements for final testing of the valve before introducing the conveying fluid (see 13.4);
- w) Added "Emergency drills before putting into production should be completed." (see 13.6);
- x) Delete "the management system shall be established and implemented in accordance with the following objectives" (see 13.1.1 of the.2009 version);
- y) The operation and maintenance plan has been changed (see 14.1.2, 13.1.2 of the.2009 version);
- z) Added operation and maintenance procedures (see 14.1.3);
- aa) Added "operators of construction machinery (drilling, piling, directional drilling, pipe jacking, mechanical excavation, etc.) along the pipeline" (see 14.1.7);
- bb) Added "Pipelines should be filled in accordance with the requirements of 13.6" (see 14.2.5);
- cc) Added "Geophysical exploration, oil seismic prospecting (blasting) situation" (see 14.3.2.2);
- dd) Added "fire protection system status" and "lightning protection and anti-static system status" (see 14.3.5.8);
- ee) Added "surrounding transportation, villages and towns, factories, trees, crops, etc." (see 14.3.7.3);
- ff) Added "compression effect causing ignition of fluid vapor" (see 14.3.7.4);
- gg) Added "Change of regional level" (see 14.4.7);
- hh) Added "regional level of existing pipelines" (see D.7).

This document is modified to adopt ISO 13623.2017 "Pipeline Conveying System for the Oil and Natural Gas Industry".

Compared with ISO 13623.2017, this document has many adjustments in structure. A comparison list of structural number changes between the two documents

See Appendix A.

Compared with ISO 13623.2017, there are many technical differences between this document and the clauses involved in the outer margin of the page.

Single lines (l) are marked. A list of these technical differences and their causes is provided in Appendix B.

The following editorial changes have been made to this document.

---Added Appendix A (informative) "List of comparison of structure numbers between this document and ISO 13623.2017";

---Added Appendix B (informative) "List of technical differences between this document and ISO 13623.2017 and their reasons";

---Replace ISO 16708 with GB/T 29167;

---Changed the serial numbers of the tables "Minimum burial depth of onshore pipelines" and "Environmental conditions to be considered when assessing external corrosion";

---Changed the serial numbers of the calculation formulas of "Axial force (F) borne by fully constrained pipes" and "CE value".

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

This document is under the jurisdiction of the National Petroleum and Natural Gas Standardization Technical Committee (SAC/TC355).

1 Scope

This document specifies the design of pipeline transportation systems, pipelines and main piping equipment, station and terminal design, materials in the oil and gas industry.

Materials and coatings, corrosion management, construction, pressure testing, pre-commissioning and commissioning, operation, maintenance and disposal.

This document applies to all new and renovated steel metal piping systems.

This document does not apply to flexible pipes or pipes made of other materials, such as fiberglass reinforced plastics, etc.

2 Normative reference documents

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

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

this document.

GB/T 229 Charpy pendulum impact test method for metallic materials (GB/T 229-2020, ISO 148-1.2016, MOD)

GB/T 755 Ratings and performance of rotating electrical machines (GB/T 755-2019, IEC 60034-1.2017, IDT)