

Specification for Polyethylene Line Pipe (PE)

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Contents

1	Scope	1
1.1	Purpose.....	1
1.2	Service Conditions	1
2	Normative References	1
3	Terms, Definitions, Acronyms, and Abbreviations	2
3.1	Terms and Definitions	2
3.2	Acronyms and Abbreviations.....	3
4	Design	5
4.1	Determination of Working Pressure	5
4.2	Dimensions and Tolerances.....	8
5	Process of Manufacture	13
5.1	General.....	13
5.2	Materials	13
5.3	Rework Material	14
5.4	Fittings.....	14
5.5	Finish and Workmanship.....	14
6	Quality Program	15
6.1	Quality Management System.....	15
6.2	Quality Control Tests	15
7	Marking	19
8	Handling, Storage, and Installation	19
8.1	Storage.....	19
8.2	Handling.....	20
8.3	Installation.....	20
	Annex A (informative) Design Temperatures Above 140 °F	21
	Annex B (informative) Cold Temperature Applications	22
	Annex C (informative) External Pressure Rating (Collapse Pressure)	23
	Annex D (informative) Fluid Service Factors (FSFs)	25
	Annex E (informative) Purchasing Guidelines	26
	Bibliography	27
Tables		
1	Temperature Service Factors	6
2	Examples of Standard Pressure Ratings	7
3	Dimensions and Tolerances Based on Outside Diameters	9
4	Cell Classifications According to ASTM D3350	14
5	Elevated Temperature Sustained Pressure Test Requirements	16
6	Test Description and Frequency for Pipe	16
7	Fittings Requirements and Frequency	18
A.1	Elevated Temperature Code	21
E.1	Purchasing General Guidelines	26

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Specification for Polyethylene Line Pipe (PE)

1 Scope

1.1 Purpose

This specification covers polyethylene line pipe (PE) utilized for the production and transportation of oil, gas, mixed-phase fluids, and non-potable water. The piping is intended for use in new construction, insertion renewal, line extension, and repair of both aboveground and buried pipe applications.

1.2 Service Conditions

The standard service conditions for the API 15LE standard pressure rating are as follows.

The hydrostatic design stress (HDS) is considered to be the maximum long-term stress for an indefinite time and is the basis for the pipe's standard pressure rating. The standard pressure rating may be further adjusted to account for fluid service and temperature per the guidance in this standard. The design life is normally considered to be in excess of 50 years under these standard conditions but may vary depending on actual operating conditions.

Typical service temperature is between $-30\text{ }^{\circ}\text{F}$ and $140\text{ }^{\circ}\text{F}$.

If the service temperature is between $-30\text{ }^{\circ}\text{F}$ and $140\text{ }^{\circ}\text{F}$ and is subject to temporary excursions outside of this range, it is recommended to consult with the manufacturer for guidance. See Annex A.

For sustained, long-term (e.g. 50 years) elevated design temperatures that exceed $140\text{ }^{\circ}\text{F}$, see Annex A.

The fluid environment is oil, gas, mixed-phase fluids, and non-potable water, e.g. raw water, produced water, and brine.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

API Specification Q1, *Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry*

ASTM D1598¹, *Standard Test Method for Time-to Failure of Plastic Pipe Under Constant Internal Pressure*

ASTM D1599, *Standard Test Method for Resistance to Short-Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings*

ASTM D1603, *Standard Test Method for Carbon Black Content in Olefin Plastics*

ASTM D2122, *Standard Test Method for Determining Dimensions of the Thermoplastic Pipe and Fittings*

ASTM D2290, *Standard Test Method for Apparent Hoop Tensile Strength of Plastic or Reinforced Plastic Pipe*

ASTM D2513, *Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings*

ASTM D2683, *Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter—Controlled Polyethylene Pipe and Tubing*

¹ ASTM International, PO Box C700, 100 Barr Harbor Drive, West Conshohocken, PA 19428, www.astm.org.