

Technical Data Sheet

Alathon L4904



High Density Polyethylene

Product Description

Alathon L4904 is a bimodal, high molecular weight, high density polyethylene resin with excellent processing characteristics. L4904 is selected by customers for pressure pipe applications including gas distribution, industrial piping, mining, oil & gas gathering, municipal water service lines and sewers. Customers typically use L4904 in applications requiring high resistance to pipe failure by rapid crack propagation and slow crack growth mechanisms. Please contact your LyondellBasell Technical Service Engineer or Sales Manager for an approved color and black masterbatch list. When L4904 is combined with a LyondellBasell approved color or black masterbatch at the correct use level, this compound may meet the following standards or requirements:

- ASTM D2513-20 for Polyethylene (PE) Gas Pressure Pipe, Tubing and Fittings
- ASTM D3350 Cell Classifications: **PE445574C**, **PE445574E**, **PE445576C**, and **PE445576E**. For Oxidative Resistance Classification Categorization values (CC), please contact your LyondellBasell Technical Service Engineer or Sales Manager.
- CSA B137.1 for Pipe, Tubing, and Fittings for Cold-Water Pressure Services
- CSA B137.4 for Polyethylene Piping Systems for Gas Services: PE 4710 PLUS & PE 100
- NSF Standard 14 and Standard 61 for Potable Water Pipe and Fittings
- NSF Standard 14 for Gas Distribution Applications
- NSF Standard 358-1 for PE Pipe and Fittings for "Geothermal" Heat Pump Systems
- Plastics Pipe Institute (PPI) PE 4710 and PE100 per PPI TR-3

Regulatory Status

For regulatory compliance information, see *Alathon L4904* [Product Stewardship Bulletin \(PSB\) and Safety Data Sheet \(SDS\)](#).

Status	Commercial
Availability	North America; South & Central America
Application	Drinking Water Pipe; Gas Pipe
Market	Industrial, Building & Construction; Pipe
Processing Method	Pipe

Typical Properties	Nominal Value	English Units	Nominal Value	SI Units	Test Method
Physical					
Melt Flow Rate					
(190 °C/2.16 kg)	0.04	g/10 min	0.04	g/10 min	ASTM D1238
(190 °C/5.0 kg)	0.18	g/10 min	0.18	g/10 min	ASTM D1238
(190 °C/21.6 kg)	7.0	g/10 min	7.0	g/10 min	ASTM D1238
Density, (23 °C)	0.949	g/cm ³	0.949	g/cm ³	ASTM D1505
Mechanical					
Flexural Modulus, (2% Secant)	146000	psi	1006	MPa	ASTM D790
Tensile Stress at Break	5100	psi	35.2	MPa	ASTM D638
Tensile Stress at Yield	3500	psi	24.1	MPa	ASTM D638
Tensile Elongation at Break	615	%	615	%	ASTM D638
PENT on Natural Resin, (2.4 MPa, 80 °C, Air)	10000	hr	10000	hr	ASTM F1473

Values were determined on natural L4904 resin.

Thermal

Low Temperature Brittleness, F ₅₀	<-105 °F	<-76 °C	ASTM D746
DSC Induction Temperature	500 °F	260 °C	ASTM D3350
Oxidative-Induction Time, (200 °C)	100 min	100 min	ASTM D3895

Values were determined on L4904 compounded with an approved masterbatch.

Conformance Testing

Hydrostatic Design Basis			
(73 °F)	1600 psi	1600 psi	ASTM D2837
(140 °F)	1000 psi	1000 psi	ASTM D2837
Minimum Required Strength, (20 °C)	10 MPa	10 MPa	ISO 12162
Creep Rupture Strength, (20 °C, 12.4 MPa)	>200 hr	>200 hr	ASTM D1598
Resistance to Rapid Crack Propagation, Pc @ 32 °F	>12 bar	>12 bar	ISO 13477
Values were obtained on 8" SDR11 pipe made with L4904 and an approved masterbatch.			
Resistance to Rapid Crack Propagation, Tc @ 5 bar	<10 °F	<-12 °C	ISO 13477
Values were obtained on 4" SDR11 pipe made with L4904 and an approved masterbatch.			
Notched Pipe Test, (80 °C, 4.6 MPa)	>2500 hr	>2500 hr	ISO 13479
Values were obtained on 4" SDR11 pipe made with L4904 and an approved masterbatch.			

Notes

Typical Property values were determined on natural L4904 resin, unless otherwise noted. Conformance Test values were determined from L4904 compounded with an approved masterbatch.

These are typical property values not to be construed as specification limits.

Processing Techniques

Specific recommendations for resin type and processing conditions can only be made when the end use, required properties and fabrication equipment are known.

Caution

If an approved masterbatch is not used in the manufacture of pipe or fittings, the customer assumes all responsibility for determining that the final article meets the applicable material and pipe or fittings standards.

Certifications



Certified as meeting requirements of Plastics Pipe Institute and NSF International, as stated above.

Company Information

For further information regarding the LyondellBasell company, please visit <http://www.lyb.com/>.

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