Technical Data Sheet

Alathon M4612

High Density Polyethylene

Product Description

Alathon M4612 is a copolymer that provides outstanding stress crack resistance and low temperature impact strength. Typical applications include food containers, seat hinges, tube headers and parts requiring high ESCR.

Regulatory Status

For regulatory compliance information, see *Alathon* M4612 Product Stewardship Bulletin (PSB) and Safety Data Sheet (SDS).

Status	Commercial
Availability	North America
Application	Containers; Tube Headers
Market	Rigid Packaging
Processing Method	Injection Molding
Attribute	High ESCR (Environmental Stress Cracking Resistance)

Typical Properties	Nominal Value	English Units	Nominal Value	SI Units	Test Method
Physical					
Melt Flow Rate, (190 °C/2.16 kg)	1.2	g/10 min	1.2	g/10 min	ASTM D1238
Density, (23 °C)	0.946	g/cm³	0.946	g/cm³	ASTM D1505
Bulk Density	37-39	lb/ft³	593-625	kg/m³	ASTM D1895
Spiral Flow	7.7	in	19.6	cm	LYB Method
Mechanical					
Flexural Modulus					
(1% Secant)	135000	psi	931	MPa	ASTM D790
(2% Secant)	112000	psi	772	MPa	ASTM D790
Flexural Young's Modulus	146000	psi	1010	MPa	ASTM D790
Tensile Modulus, (1% Secant)	92200	psi	636	MPa	ASTM D638
Tensile Young's Modulus	117000	psi	807	MPa	ASTM D638
Tensile Stress at Break, (23 °C)	3470	psi	23.9	MPa	ASTM D638
Tensile Stress at Yield, (23 °C)	3350	psi	23.1	MPa	ASTM D638
Tensile Elongation at Break, (23 °C)	550	%	550	%	ASTM D638
Tensile Elongation at Yield, (23 °C)	12	%	12	%	ASTM D638
Impact					
Notched Izod Impact Strength, (23 °C)	1.4	ft-lb/in	74.7	J/m	ASTM D256
Unnotched Impact Strength, (-18 °C)	No Break		No Break		ASTM D4812
Hardness					
Shore Hardness, (Shore D, max)	69		69		ASTM D2240
Thermal					
Vicat Softening Temperature	255	°F	124	°C	ASTM D1525
Low Temperature Brittleness, F_{50}	<-105	°F	<-76	°C	ASTM D746
Deflection Temperature Under Load, (66 psi, Unannealed)	144	°F	62	°C	ASTM D648

Manufacturer website: https://www.lyondellbasell.com/en/

Melting Temperature	261.9 °F	127.7 °C	ASTM D3418
Crystallization Temperature	235.8 °F	113.2 °C	ASTM D3418

Notes

Conditions of Tensile Stress and Elongation values are: 50 mm/min, Type IV specimen.

Conditions of Flexural Modulus values are: 0.5 inches/min or 12.5 mm/min.

Conditions of Tensile Modulus values are: 50 mm/min, Type I Specimen.

Igepal® is a registered trademark of Rhodia.

Spiral Flow measures the number of inches of flow produced when molten resin is injected into a long, spiral channel (0.0625" insert), at a constant injection pressure of 1000 psi with a melt temperature of 440 °F.

Deflection Temperature Under Load and Low Temperature Brittleness data are for control and development work and are not intended for use in design or predicting performance at elevated or sub-ambient temperatures.

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.

Company Information

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

© LyondellBasell Industries Holdings, B.V. 2026

Disclaimer

Information in this document is accurate to the best of our knowledge at the date of publication. The document is designed to provide users general information for safe handling, use, processing, storage, transportation, disposal and release and does not constitute any warranty or quality specification, either express or implied, including any warranty of merchantability or fitness for any particular purpose. Users shall determine whether the product is suitable for their use and can be used safely and legally.

In addition to any prohibitions of use specifically noted in this document, LyondellBasell may further prohibit or restrict the sale of its products into certain applications. For further information, please contact a LyondellBasell representative.

Trademarks

The Trademark referenced within the product name is owned or used by the LyondellBasell family of companies.