## Low Perm<sup>™</sup>, Isoseal<sup>™</sup>, Superseal<sup>™</sup> and Spectroseal<sup>®</sup> Product Sheet

## Low pressure gaskets • dust • light • vapor • water seals

#### Overview

Low permeability foams have a low air and vapor permeability that can be ideal for many applications requiring low pressure gasketing, possibly where higher priced materials are over-engineered. Applications include air duct damper gaskets and dust and vapor seals for automotive, appliances and data processing equipment. SUPERSEAL<sup>™</sup> foam offers both resistance to water leakage and also an open cell, low compression set foam.

## **Benefits**

- Low permeability for seals
- Controlled permeability for breathable gaskets
- Ease of fabrication
- Excellent hydrolytic stability
- Light weight
- Excellent shape retention
- Resistance to wear and abrasion to meet many automotive specs and manufactured without chlorofluorocarbons
- LOW PERM<sup>™</sup> and ISOSEAL<sup>™</sup> can be laminated to a variety of substrates.

A wide range of low permeability foams for either air or water sealing is available which can be engineered to meet demanding requirements. When fabricated into final parts, they are ideal as low pressure gaskets and for dust, light, vapor and water seals in automotive, truck, appliance and electronic equipment. All grades are available with a biocide, and in bun stock, rolls or sheets from 0.125 inches to 2 inches.



## Water Seal Test Example

A "U"-shaped die cut sample having a thickness of 10 mm is compressed between two perfectly clean acrylic plates to 50% of its original thickness. Water is poured into the "U"-cavity between the acrylic plates and the specimen up to a level of 100 mm water column. To pass, the most stringent performance, the water level must remain at 100 mm after 24 hours.



#### About FXI

FXI is a leading producer of foam innovation in the Bedding, Furniture, Industrial, Home & Office, Healthcare and Transportation Markets. Our focus is on finding tailored solutions for our customers that are driven by consumer insights and industry trends. Our products include finished goods, sub-assemblies, services and raw materials for OEMs, fabricators and retailers. You will find FXI's foam innovations inside, around and under yourself in countless applications. We protect automobile passengers on the highway, help consumers sleep sounder and furniture manufacturers create comfort. We provide for sharper images in digital printers and help consumers keep their homes clean. We provide critical components for filters, gaskets and seals in everything from blood oxygenators to computer disk drives. Everywhere foam goes; FXI's innovations lead the way.

IMPORTANT NOTICE REGARDING FLAMMABILITY – All polyurethane foams including combustion modified foams will burn and generate smoke and gases. Performance conditions and corresponding data refer to typical performance in specific tests, such as UL-94 and MVSS-302, and should not be construed to imply the behavior of this or any other product under other fire conditions. All data regarding these products were obtained using specific test methods under controlled laboratory conditions intended to measure performance against specifications. Due to the great number and variety of applications for which FXI products are purchased, FXI does not recommend specific applications or assume any responsibility for use results obtained or suitability for specific applications. FXI warrants its products only to direct buyers. (See FXI's Standard Terms of Sales for FXI's warranty.) IN NO EVENT SHALL FXI BE RESPONSIBLE FOR ANY CLAIM IN EXCESS OF FXI's SALE PRICE OF THE PRODUCT TO WHICH THE CLAIM RELATES.

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# Low Perm<sup>™</sup>, Isoseal<sup>™</sup>, Superseal<sup>™</sup> and Spectroseal<sup>®</sup> Product Sheet

	ck Facts								
		LP150	LP180	LP250	ISOSEAL™	Super ISOSEAL™	SUPERSEAL™	SUPERSEAL™ BKD	SPECTROSEAL® Gasketing Foam
	Foam Type	Polyether	Polyether	Polyether	Polyether	Polyether	Polyester	Polyether	Polyether
Γ	Density (pcf [kg/m3])	1.65 [26]	1.95 [31]	2.4 [38]	1.6 [26]	1.65 [26]	3.3 [53]	2.2 [35]	3.3 [53]
	Pore Size (ppi)	30	30	35	-	-	90	90	90
	Tensile Strength, (psi [kPa])	16 [110]	15 [103]	14 [97]	15 [103]	17 [117]	23 [159]	13 [90]	37 [255]
	Elongation (%)	175	175	185	135	175	210	145	125
	25% Compression Force Deflection, (psi [kPa])	0.4 [2.8]	0.4 [2.8]	0.4 [2.8]	0.6 [4.1]	0.55 [3.8]	0.65 [4.5]	1.6 [11.0]	1.8 [12.4
	50% Compression Set (%)	15	8	8	4	4	6	4	5
	Flammability	MVSS302	MVSS302	MVSS302 UL-94 HF-1	MVSS302	MVSS302	MVSS302	MVSS302	MVSS302
	Biocide	Yes	Yes	No	Yes	Yes	Available	Available	Availablex
OEN	Specifications	1							
ord	ESA-M4D200-B	x	X	X					
Ford	ESA-M4D200-B WSS-99P2222-A1	x	X X	X	Y				
Ford	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D	X		X	x			×	
Ford	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A	X		X	X	X	X	X	
Ford	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A	X		X	x	X	X	X	
Ford	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A	X		X	X	X	X X X		
	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA		X			X		x	
Ford General Motor	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A	X		×	X	X	X		
General	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1		X			X			×
General Motor	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3	x	X	X	X	X	X		X
General Motor	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-349A MS-AY-345A	x	X	X	X X	X	X		X
General Motor	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-349A MS-AY-355A MS-AY-355A	x	X	X	x x x	X	X		X
General Motor	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-349A MS-AY-345A	x	X	X	x x x	X	x		X
General Motor	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-35A MS-AY-355A MS-AY-558A MS-AY-552A T1 TSK6712G1A-A1	x	X	X	x x x	X	x		X
General Motor Chrysler	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-325A MS-AY-355A MS-AY-355A MS-AY-522A T1 TSK6712G1A-A1 TSK6712G1A-A2W2	x	X X X X	X	x x x	X	x		X
General Motor Chrysler Toyota	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-325A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A1W2	x x x	X X X X X X	X	x x x x	X	x		X
General Motor Chrysler	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-325A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A1W2 SD2-209 6.2	x	x x x x x x x x x	X	x x x x	X	X X X X X		X
General Motor Chrysler Toyota	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-326A MS-AY-355A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A2W2 TSK6712G2A-A1W2 SD2-209 6.2 SD2-209 6.7	x x x	X X X X X X	X	x x x x x	X	X X X X X		X
General Motor Chrysler Toyota	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-326A MS-AY-355A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A1 TSK6712G2A-A1W2 SD2-209 6.2 SD2-209 6.7	x x x	x x x x x x x x x	X	x x x x	X	X X X X X		
General Motor Chrysler Toyota	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-325A MS-AY-355A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A2W2 TSK6712G2A-A1W2 SD2-209 6.2 SD2-209 6.12 SD2-209 6.13	x x x	x x x x x x x x x	X	x x x x x	X	x x x x x		X
General Motor Chrysler Toyota	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-325A MS-AY-325A MS-AY-355A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-552A T1 TSK6712G1A-A1 TSK6712G1A-A2W2 TSK6712G1A-A2W2 SD2-209 6.2 SD2-209 6.12 SD2-209 6.13 SD2-209 6.14	x x x	X X X X X X X X X	X	x x x x x	X	x x x x x		
General Motor Chrysler Toyota	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-326A MS-AY-325A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A1 TSK6712G1A-A1W2 SD2-209 6.2 SD2-209 6.13 SD2-209 6.14 SD2-209 6.15	x x x	x x x x x x x x x	X	x x x x x	X	X X X X X X		X
General Motor Chrysler Toyota	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-326A MS-AY-325A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A2W2 TSK6712G2A-A1W2 SD2-209 6.2 SD2-209 6.12 SD2-209 6.14 SD2-209 6.14 SD2-209 6.15 SD2-209 6.17	x x x	X X X X X X X X X	X	x x x x x		x x x x x	X	
General Motor Chrysler Toyota Delphi	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-326A MS-AY-325A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A2W2 TSK6712G1A-A2W2 TSK6712G1A-A2W2 TSK6712G2A-A1W2 SD2-209 6.1 SD2-209 6.1 SD2-209 6.1 SD2-209 6.1 SD2-209 6.1 SD2-209 6.1	x x x	X X X X X X X X X X X X X X X	X	x x x x x	X	X X X X X X		x
General Motor Chrysler Toyota	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-326A MS-AY-355A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A2 SD2-209 6.12 SD2-209 6.12 SD2-209 6.14 SD2-209 6.14 SD2-209 6.17 SD2-209 6.17 SD2-209 6.19 Visteon VAM-	x x x	X X X X X X X X X	X	x x x x x		X X X X X X	X	X
General Motor Chrysler Toyota Delphi	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-326A MS-AY-355A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A1 TSK6712G1A-A1 TSK6712G1A-A2W2 TSK6712G1A-A2W2 TSK6712G2A-A1W2 SD2-209 6.2 SD2-209 6.1 SD2-209 6.1 SD2-209 6.15 SD2-209 6.17 SD2-209 6.19 Visteon VAM- FOAM1AOB	x x x	X X X X X X X X X X X X X X X	X	x x x x x		x x x x x x x x	X	x
General Motor Chrysler Toyota Delphi	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-355A MS-AY-355A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-552A T1 TSK6712G1A-A2W2 TSK6712G1A-A2W2 SD2-209 6.12 SD2-209 6.12 SD2-209 6.13 SD2-209 6.14 SD2-209 6.15 SD2-209 6.15 SD2-209 6.19 Visteon VAM- FOAM1AOB Mercedes-Benz	x x x	X X X X X X X X X X X X X X X	X	x x x x x		X X X X X X	X	x
General Motor Chrysler Toyota Delphi	ESA-M4D200-B WSS-99P2222-A1 ESH-M4D291-D WSH-M2D410-A WSB-M4G337-A WSK-M2D460-A ES8G13190A672-AA GM251M T1 GMW14196 T3 MS-AY-326A MS-AY-326A MS-AY-326A MS-AY-355A MS-AY-355A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A MS-AY-558A TSK6712G1A-A1 TSK6712G1A-A1 TSK6712G1A-A1 TSK6712G1A-A2W2 TSK6712G1A-A2W2 TSK6712G2A-A1W2 SD2-209 6.2 SD2-209 6.1 SD2-209 6.1 SD2-209 6.15 SD2-209 6.17 SD2-209 6.19 Visteon VAM- FOAM1AOB	x x x	X X X X X X X X X X X X X X X	X	x x x x x		x x x x x x x x	X	x

1 Not to be used as a specification

2 Special grade needed to pass this requirement

\*Typical physicals not to be used for specification purposes. Please contact your account rep for specification information.

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