

AUTOMOTIVE



Monarch® #5055

- UL94 HF-1 and HBF listed for flame
- UL50E (periodic and continuous compression), UL508 and UL48 listed for gaskets and seals (recent upgrade)
- Widely used, firm general purpose EPDM / CR / SBR blend
- ASTM D 1056-07 2A5 grade material
- 12 lb./ft³ (192 kg/m³) density closed cell material
- Fine cell – manufactured in blocks (buns)

Monarch®

General Info

Armacell Monarch® #5055: Armacell LLC (Spencer, WV Plant) manufactures a black, general purpose, 12 ± 2 lb./ft³ (192 ± 32 kg/m³) density, closed cell, EPDM / Neoprene / SBR blended rubber product #5055 that meets all the physical property requirements of ASTM D 1056-07 2A5 and SAE J18 APR2002 2A5. #5055 is manufactured with non-staining oils and anti-oxidants. #5055 meets the requirements of UL 94 HF-1 and HBF (request specific thickness information) (UL file# QMFZ2.E55798) and FMVSS-302 at 1.75 mm (0.068”) and higher. #5055 is also listed with UL to UL50E (periodic and continuous compression), UL48 and UL508 (UL file# JMLU2.MH25062). #5055 is also available in gray (#5955 - not UL 94 listed).

Bun Size Information

Product	Bun Size (Inches)			Bun Size (mm)			Color
	W	L	T	W	L	T	
5055	38	48	1.5	965	1219	38.1	Black
5055	40	60	1.5	1016	1524	38.1	Black

Automotive and Industrial Specifications

The following is a list of automotive and industrial specifications that Armacell Monarch® #5055 has been tested to or can meet. Additional specifications are listed that have a few exceptions. Feel free to suggest other automotive, military or industrial specifications, and a full review will be made.

Source	Specification	Armacell Monarch® #5055	Comments
ASTM	ASTM D 1056-07	2A5	Additional (optional) suffixes can be added
ASTM	ASTM D 6576-07	Type II, grade A, B, & C condition firm	Formerly MILR6130-C
ASTM	ASTM G 21-09	Pass, rating 1	Fungus resistance test method
Caterpillar	1E0720	1E0720F (firm)	No exceptions
Chrysler	Chrysler MSZ-75 J18	2A5	Additional (optional) suffixes can be added
Chrysler	Chrysler MS JP9-4	Meets at thicknesses of 1.75mm (.068") and higher	Flame resistance (horizontal burn rate)
Federal	FMVSS-302	Meets at thicknesses of 1.75mm (.068") and higher	Flame resistance (horizontal burn rate). See note 3
FORD	FORD WSK M2D 419-A	Type 6	See note 2
GM	GM 6086-M	Type IIIB	CD tested at 50% deflection. See note 1
GM	GM 6090-M	(B4A) Meets at thicknesses of 1.75mm (0.068") and higher	Flame resistance tested per GM 9070-P (horizontal burn rate)
GM	GMN11106	Type IIIB	CD tested at 50% deflection. See note 1
GM	GMW15473	Class I Type VI	CD tested at 50% deflection. See note 1
ISO	ISO 6916	2A5	No exceptions
Military	ASTM D 6576-07	Type II, grade A, B, & C condition firm	Formerly MILR6130-C
SAE	SAE J 18 APR2002	2A5	Additional (optional) suffixes can be added
SAE	SAE J 369	Meets at thicknesses of 1.75mm (.068") and higher	Flame resistance (horizontal burn rate)
SAE	SAE J 1351	Rating 2	Odor specification
Toyota	TSM 1501G	2A5	No exceptions
Toyota	TSM 0500G	Meets at thicknesses of 1.75mm (.068") and higher	Flame resistance (horizontal burn rate)
UL	UL 94 HF-1	HF-1 listed at 1.5mm-1.8mm (.059" - .07")	Flame resistance specification. (UL file # QMFZ2.E55798)
UL	UL 94 HBF	HBF listed at 1.8mm (.07") and higher	Flame resistance specification. (UL file # QMFZ2.E55798)
UL	UL 48 / UL 50 / UL 508	Suitable for UL 50, UL 50E (periodic and continuous compression), UL 508 in all colors	Gasket and seals / UL listed. (UL file # JMLU2.MH25062)

Note 1: For all GM 6086-M, GMN11106 & GMW15473 callouts, Armacell Monarch® certifies to the "basic" requirements only. Request additional information for each product. Providing application (interior, exterior or under-hood) and part thickness is helpful.

Note 2: For all FORD WSK M2D 419-A callouts, request full information for each product due to some exceptions with non tested staining requirements.

Note 3: A number of horizontal burn tests can also be listed (GM 6090, BMW, Volvo, etc.). Request additional information.



Polymer Base: Neoprene, EPDM, SBR Blend

F-05055 (Black)

Physical Properties	Unit	Test Method	Typical Results
Density	kg/m ³	ASTM D 1056	192 ± 32
	lb/ft ³	ASTM D 1056	12 ± 2
Hardness, Durometer Shore 00		ASTM D 2240	70 ± 5
Compression Deflection (25%)	kPa	ASTM D 1056	145 ± 28
	psi	ASTM D 1056	21 ± 4
Compression Set (Room temp)	%	ASTM D 1056	≤ 25%
Tensile Strength	kPa	ASTM D 412 (Die A)	1030
	psi	ASTM D 412 (Die A)	150
Tear Strength	kN/m	ASTM D 624 (Die C)	6.1
	lb/in	ASTM D 624 (Die C)	35
Elongation	%	ASTM D 412 (Die A)	125%
Resilience	%	ASTM D 2632	15%
Service Temperature			
Low	°F (°C)	ASTM D 746	-40°F (-40°C)
High Continuous	°F (°C)	ASTM D 746	200 °F (93.3°C)
High Intermittent	°F (°C)	ASTM D 746	250°F (121.1°C)
Water Absorption			
Maximum Weight Change	%	ASTM D 1056	< 5%
Fluid Immersion (7 days at 23°C [73.4°F])			
ASTM Ref. Fuel B, Weight Change (%)	%	ASTM D 1056	Not Applicable
Accelerated Aging (7 days at 70°C [158°F])			
Flexibility (180° bend without cracking)		ASTM D 1056	Pass
Appearance change		ASTM D 1056	None
Change in Compression Deflection	%	ASTM D 1056	± 30%
Combustion Characteristics		Thicknesses	Comments
FMVSS-302		.068" (1.75 mm) & higher	Pass
UL 94			
HF-1		.059" - .07" (1.5 mm -1.8 mm)	Listed, UL file # QMFZ2.E55798
HBF		.071" (1.8 mm) & higher	Listed, UL file # QMFZ2.E55798

ASTM D 1056 designation: 2A5
 SAE J 18 APR2002 designation: 2A5
 ASTM D 6576: Type II, Grade A, Condition Firm
 Additionally UL Listed to: UL48, UL50E, and UL508 (UL file # JMLU2.MH25062)
 EPDM = (ethylene-propylene-diene-methylene)
 SBR = styrene-butadiene rubber
 Neoprene = polychloroprene (CR = chloroprene rubber)

UL File Number for Armacell Monarch® #5055

UL File Number: QMFZ2.E55798

Plastics – Component (UL 94)

		Min.		H	H	R T I		V	4	C	
		Thk	Flame	W	A	Elec	Mech	T	9	T	
Material Dsg	Color	mm	Class	I	I		Imp	Str	R	5	I

Neoprene/Ethylene Propylene/Styrene (CBR/EPR/SB), blocks, buns, furnished as foamed.

F-005055	BK	1.5 – 1.8	HF-1	-	-	50	-	50	-	-	-
		1.8	HBF	-	-	50	-	50			
		12.0	HBF	-	-	50	-	50			

(h) – Density range 0.080 – 0.144 g/cc

Closed cell EPDM/Neoprene/SBR blend

UL File number for Armacell Monarch® #5031, #5032, #5013, #5055 & #5955

UL File Number: JMLU2.MH25062 Gaskets and Seals – Component

Mtl Dsg	Max Serv Temp	Min Serv Temp	Density pcf	Tnsl Str	Elong	Max Comp Set	Nom Thkns Range In.	Use (1)
F-005X13	60°C	-40°C	11.4	155	140	25.4	—	(2,3)
F-005X31	60°C	-40°C	6.8	95	135	35.5	—	(2,3)
F-005X32	60°C	-40°C	6.7	85	105	34.2	—	(2,3)
F-005055	60°C	-40°C	9.54	160	116	18.6	—	(2)
F-005955	60°C	-40°C	9.54	160	116	18.6	—	(2)

(1) See explanation of end-use environments in guide for this category.

(2) Also suitable for use in UL48, UL50E (continuous and periodic compression), UL508.

(3) X - Represents numbers 0 thru 9 for colors.

UL Spec	Test Method	Requirements
UL48	Tensile strength or elongation characteristics after 70 hours at 100°C for a 60°C maximum service temperature	60% of original (For both tensile and elongation)
UL48	(OR) Heat aging 70 hours in an air oven at a temperature of 100 ± 2°C	No visible evidence of deterioration such as cracking after flexing, softening, or hardening after exposure
UL50E	Tensile strength and elongation after heat aging 168 h (7 d) @ 158°F (70°C)	75% of original for tensile strength 60% of original for elongation
UL50E	Oil immersion / oil aging (IRM # 903), % volume change after 70 h @ room temperature	Shall not swell more than 25% or shrink more than 1% of original volume
UL157	Tensile strength and elongation after heat aging 70 h @ 212°F (100°C)	60% of original (For both tensile and elongation)
UL508	Tensile strength and elongation after heat aging 70 h @ 212°F (100°C)	75% of original (For both tensile and elongation)

UL Yellow Card Listing Verification Online

To obtain verification online:

1. www.ul.com
2. Click on "Certifications"
3. Click on "Company Name" in the general search area
4. Type in "Armacell" & click "Search"
5. 8 (Eight) Armacell file numbers come up (2 belong to Armacell Germany)
 - For Armacell Ensolite® & Monarch® products (Flame / UL94)
Click on QMFZ2.E55798
 - For Armacell Ensolite® products listed to JMST2 (Gaskets & Seals).
Click on JMST2.MH30018 and JMST2.MH10189
 - For Armacell Monarch® products listed to JMLU2 (Gaskets & Seals).
Click on JMLU2.MH25062

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