

AUTOMOTIVE



Monarch® #2055

- UL94 HF-1 & HBF listed for flame
- Widely used, firm Neoprene based material
- 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® #2055: Armacell LLC (Spencer, WV Plant) manufactures a black, closed cell, 12 ± 2 lb./ft³ (192 ± 32 kg/m³) density Neoprene based rubber product #2055 that meets all the requirements of ASTM D1056-07 2A5 and SAE J-18 APR2002 2A5. #2055 is manufactured with non-staining oils and anti-oxidants. #2055 contains flame retardants and meets the requirements of UL 94 HF-1 at 1.8 - 2.1 mm and HBF (2.1 mm and higher) (UL File #: QMFZ2.E55798) and FMVSS-302 at 1.75 mm (0.068”) and higher. #2055 is also available in gray (#2955 - Not UL94 listed).

Bun Size Information

Product	Bun Size (Inches)			Bun Size (mm)			Color
	W	L	T	W	L	T	
2055	38	48	1.5	965	1219	38.1	Black



Automotive and Industrial Specifications

The following is a list of automotive and industrial specifications that Armacell Monarch® #2055 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® #2055	Comments
ASTM	ASTM D 1056-07	2A5	Additional (optional) suffixes can be added
ASTM	ASTM D 6576-07	Type II, grade A, condition firm	Formerly MILR6130-C
Caterpillar	1E0720	1E0720F (firm)	No exceptions
Caterpillar	1E1576	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 (.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, 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	UL94 HF-1	HF-1 UL listed at 1.8mm-2.1mm	Flame resistance specification. (UL file# QMFZ2.E55798)
UL	UL94 HBF	HBF UL listed at 2.1mm and higher	Flame resistance specification. (UL file# QMFZ2.E55798)

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 (CR Based)

F-02055 (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	150°F (65.5°C)
High Intermittent	°F (°C)	ASTM D 746	200 °F (93.3°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
UL94			
HF-1		.071" - 0.083" (1.8 mm -2.1 mm)	Listed, UL file # QMFZ2.E55798
HBF		.083" (2.1 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
 Neoprene = polychloroprene (CR = chloroprene rubber)



UL File Number for Armacell Monarch® #2055

UL File Number: QMFZ2.E55798

Plastics – Component (UL94)

		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, sheets, buns, furnished as foamed.

F-002055	BK	1.8 - 2.1	HF-1	-	-	50	-	50	-	-	-
		2.1	HBF	-	-	50	-	50	-	-	-
		13.0	HBF	-	-	50	-	50	-	-	-

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



Seal & Design
Corporate Headquarters
 Ph: (716)-759-3344
 Info@SealAndDesign.com
www.SealAndDesign.com