

AUTOMOTIVE



Monarch® #2001

- ASTM D 1056-07 2C1 grade closed cell material
- Fine cell – manufactured in blocks (buns)
- ASTM D 6576-07 Type II, Grades A and B, Condition Soft
- Approved source for Delphi SD2-207, paragraph 6.7

Monarch®

General Information

Armacell Monarch® #2001: Armacell LLC (Spencer, WV Plant) manufactures a black, closed cell, $9 \pm 2 \text{ lb./ft}^3$ ($144 \pm 32 \text{ kg/m}^3$) density Neoprene based rubber product #2001, that meets all the physical property requirements of ASTM D 1056-07 2A1 / 2C1 and SAE J-18 APR2002 2A1 / 2C1. #2001 is manufactured with non-staining oils and anti-oxidants. #2001 meets the flame resistance requirements of FMVSS-302 at most thicknesses.

Bun Size Information

Product	Bun Size (Inches)			Bun Size (mm)			Color
	W	L	T	W	L	T	
2001	42	54	2	1067	1372	50.8	Black
2001	42	72	2	1067	1829	50.8	Black

Automotive and Industrial Specifications

The following is a list of automotive and industrial specifications that Armacell Monarch® #2001 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® #2001	Comments
ASTM	ASTM D1056-07	2A1 / 2C1	Additional (optional) suffixes can be added
ASTM	ASTM D 6576-07	Type II, Grades A & B, Condition Soft	Formerly MILR6130-C
ASTM	ASTM G 21-09	Pass, rating 1	Fungus resistance test method
Bombardier	Bombardier SMP 205	Pass with multiple exceptions	Expanded rubber closed cell
Caterpillar	1E0720	1E0720D (soft)	Exception to compression set
Chrysler	Chrysler MSZ-75 J18	2A1 / 2C1	Additional (optional) suffixes can be added
Chrysler	Chrysler MS JP9-4	Meets at most thicknesses	Flame resistance (horizontal burn rate)
Delphi	SD2-207	Paragraph 6.7	See note 4. On approved source list
Federal	FMVSS-302	Meets at most thicknesses	Flame resistance (horizontal burn rate). See note 3
FORD	FORD WSK M2D 419-A	Type 2	See note 2
GM	GM 6086-M	Type II	CD tested at 50% deflection. See note 1
GM	GM 6090-M	(B4A) Meets at most thicknesses	Flame resistance tested per GM 9070-P (horizontal burn rate)
GM	GMN11106	Type II	CD tested at 50% deflection. See note 1
GM	GMW15473	Class I Type IV	CD tested at 50% deflection. See note 1
ISO	ISO 6916	2A1 / 2C1	No exceptions
Military	ASTM D 6576-07	Type II, Grades A & B, Condition Soft	Formerly MILR6130-C
SAE	SAE J 18 APR2002	2A1 / 2C1	Additional (optional) suffixes can be added
SAE	SAE J 369	Meets at most thicknesses	Flame resistance (horizontal burn rate)
SAE	SAE J 1351	Rating 2	Odor specification
Toyota	TSM 1501G	2A1 / 2C1	No exceptions
Toyota	TSM 0500G	Meets at most thicknesses	Flame resistance (horizontal burn rate)

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.

Note 4: See QMPL-3621 Revision 12. Effective date August 24, 2009.



Polymer Base: Neoprene (CR Based)

F-02001 (Black)

Physical Properties	Unit	Test Method	Typical Results
Density	kg/m ³	ASTM D 1056	144 ± 32
	lb/ft ³	ASTM D 1056	9 ± 2
Hardness, Durometer Shore 00		ASTM D 2240	50 ± 5
Compression Deflection (25%)	kPa	ASTM D 1056	24 ± 10
	psi	ASTM D 1056	3.5 ± 1.5
Compression Set (Room temp)	%	ASTM D 1056	≤ 25%
Tensile Strength	kPa	ASTM D 412 (Die A)	550
	psi	ASTM D 412 (Die A)	80
Tear Strength	kN/m	ASTM D 624 (Die C)	2.5
	lb/in	ASTM D 624 (Die C)	14
Elongation	%	ASTM D 412 (Die A)	150%
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	< 10%
Fluid Immersion (7 days at 23°C [73.4°F])			
ASTM Ref. Fuel B, Weight Change (%)	%	ASTM D 1056	< 250%
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			Comments
FMVSS-302			Pass at most thicknesses

ASTM D 1056 designation: 2A1 / 2C1
 SAE J 18 APR2002 designation: 2A1 / 2C1
 ASTM D 6576: Type II, Grades A & B, Condition Soft
 Neoprene = polychloroprene (CR = chloroprene rubber)

ARMACELL LLC
 TEL: 1 800 866-5638
 FAX: 919 304-3847
 info.us@armacell.com
 www.armacell.us
 7600 Oakwood Street Extension • Mebane, NC 27302



Armacell provides this information as a technical service. To the extent the information is derived from sources other than Armacell, Armacell is substantially, if not wholly, relying upon the other source(s) to provide accurate information. Information provided as a result of Armacell's own technical analysis and testing is accurate to the extent of our knowledge and ability, as of date of printing, using effective standardized methods and procedures. Each user of these products, or information, should perform their own tests to determine the safety, fitness and suitability of the products, or combination of products, for any foreseeable purposes, applications and uses by the user and by any third party to which the user may convey the products. Since Armacell cannot control the end use of this product, Armacell does not guarantee that the user will obtain the same results as published in this document. The data and information are provided as a technical service and are subject to change without notice.