



Monarch®

2045

FINE, CLOSED CELL, HIGH DENSITY, NEOPRENE BASED FOAM IN BUN FORM



Armacell LLC (Spencer, WV Plant) manufactures Monarch 2045, a black, closed cell, $19 \pm 4 \text{ lb/ft}^3$ ($304 \pm 64 \text{ kg/m}^3$) density neoprene based rubber product.

- Meets all the requirements of ASTM D 1056-14 2A5/2C5.
- Manufactured with non-staining oils and anti-oxidants.
- Does not incorporate a flame retardant but meets the requirements of FMVSS-302 at thicknesses of 0.1875" (3/16") (4.76 mm) and higher.
- 2045 is listed as an approved source on: Penn DOT Bulletin 15 Section 1085.2 (m).



- Firm, high density neoprene based rubber product
- ASTM D 1056-14 2A5/2C5 grade closed cell expanded rubber
- Fine cell – manufactured in blocks (buns)
- 2045 is listed as an approved source on Penn DOT Bulletin 15 Section 1085.2 (m).

 **armacell®**

Engineered For Success.



Bun Size Information:

| Product | Bun Size (in) | | | Bun Size (mm) | | | Color |
|---------|---------------|----|---|---------------|------|------|-------|
| | W | L | T | W | L | T | |
| 2045 | 40 | 48 | 1 | 1016 | 1219 | 25.4 | Black |

Automotive and Industrial Specifications:

| Source | Specification | Armacell (Monarch®) 2045 | Comments |
|-------------|----------------|---|---|
| ASTM | D 1056-14 | 2A5/2C5 | Additional suffixes such as B3 & F1 can be added |
| ASTM | D 6576-13 | Type II Grade B Condition Firm | Formerly MIL R 6130-C |
| Caterpillar | 1E0720F | Firm | Exceptions: None |
| Federal | FMVSS-302 | Pass at thicknesses of 0.1875" (3/16") (4.76 mm) and higher | Flame resistance (horizontal burn rate). See note 1 |
| Ford | WSK-M2D419-A | Type 6 | See note 2 |
| GM | GMW 15473 | Class I Type VI | CD tested at 50% deflection. See note 3 |
| Military | ASTM D 6576-13 | Type II Grade B Condition Firm | Formerly MIL R 6130-C |
| Penn DOT | Bulletin 15 | Section 1085.2 (m) | On approved source list |
| SAE | SAE J369 | Pass at thicknesses of 0.1875" (3/16") (4.76 mm) and higher | Flame resistance (horizontal burn rate). Similar to FMVSS-302. See note 1 |

Note 1: A number of horizontal burn tests can also be listed (GM 6090, BMW, Volvo, etc.). Request additional information.

Note 2: For all Ford WSK-M2D419-A callouts, request full information for each product due to some possible exceptions (example: non-standard staining requirements).

Note 3: For all GMW 15473 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.

Data Sheet:

| Physical Properties | Unit | Test Method | Typical Result |
|--|--------------------|--------------------|---|
| Density | lb/ft ³ | ASTM D 1056 | 19 ± 4 |
| | kg/m ³ | ASTM D 1056 | 304 ± 64 |
| Hardness, Durometer Shore 00 | | ASTM D 2240 | 70 ± 10 |
| Tensile Strength | psi | ASTM D 412 (Die A) | 200 |
| | kPa | ASTM D 412 (Die A) | 1379 |
| Elongation | % | ASTM D 412 (Die A) | 200 |
| Tear Strength | lb/in | ASTM D 624 (Die C) | 35 |
| | kN/m | ASTM D 624 (Die C) | 6.1 |
| Compression Deflection (25%) | psi | ASTM D 1056 | 21 ± 4 |
| | kPa | ASTM D 1056 | 145 ± 28 |
| Compression Set (50%) | % | ASTM D 1056 | Room Temperature: 25 max. |
| Resilience | % | ASTM D 2632 | 30 |
| Service Temperature (1) | | | |
| Low | °F (°C) | ASTM D 1056 | -40 (-40) |
| High Continuous | °F (°C) | | 150 (65.5) |
| High Intermittent | °F (°C) | | 200 (93.3) |
| Water Absorption | | | |
| Maximum weight change | % | ASTM D 1056 | 5 |
| Fluid Immersion (7 days @ 23°C [73.4 °F]) | | | |
| ASTM Ref. Fuel B, Weight Change | % | ASTM D 1056 | 150 max. |
| Accelerated Aging (7 days at 70 °C [158 °F]) | | | |
| Flexibility (180° bend without cracking) | | | Pass |
| Appearance Change | | | None |
| Change in Compression Deflect | % | ASTM D 1056 | ± 30 |
| Combustion Characteristics (2) | Burn Rate | FMVSS-302 | Pass at thicknesses of 0.1875" (3/16") (4.76 mm) and higher |

(1) This recommendation is based on polymer type only. For specific application requirements please contact technical service department.

(2) Flammability - This data refers to typical performance in the specific test indicated. This data should not be construed to imply the behavior of material in other fire conditions.



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