Stiffness and Tear Resistance

National Rubber Technologies Corp.'s Symar® Super Tough is a unique composite material. It consists of polyester and nylon fabric laminated to masticated rubber. As a result, Super Tough products have far greater stiffness and tear resistance properties than other materials.

Durability

Symar® Super Tough's innovative properties allow thinner gauge parts to function in many extreme automotive and industrial applications. Symar® Super Tough is ideal for: Side guards, skirt boards, splash shields, liners, chutes, fender boards, and much more.

Savings

Super Tough’s strength reduces the need for part thickness and as a result, weight and cost savings can be realized. Die cut Super Tough parts have stiffness that is equivalent to complex molded parts.

Symar® means strong
SYMAR® SAYS
TOUGH AS NAILS

SUPER TOUGH 1 & 2

Technical Data

DESCRIPTION:
A composite material, consisting of a polyester and nylon fabric laminated on one or both sides of masticated rubber. This material offers superior stiffness, tensile strength and tear resistance. Cost and weight savings opportunities are possible, where Symar® Super Tough can replace a thicker rubber product.

SUPER TOUGH 2 SPECIFICATIONS:
SAE J 200 M 2AA 910 A14 C12 F17 G21 Z1 Z2 Z3
Z1: Physical properties checked with grain
Z2: Elongation with grain 15% minimum.
Z3: Material: Polyester/nylon rubber laminate

<table>
<thead>
<tr>
<th>PHYSICAL PROPERTIES</th>
<th>TEST METHOD</th>
<th>SUPER TOUGH 1</th>
<th>SUPER TOUGH 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength MPa, min (psi)</td>
<td>ASTM D412 Die C</td>
<td>with grain: 7 (1000)</td>
<td>with grain: 10 (1450)</td>
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<tr>
<td></td>
<td></td>
<td>across grain: 4 (580)</td>
<td>across grain: 5.5 (790)</td>
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<tr>
<td>Tear Strength kN/m, Min (Pl)</td>
<td>ASTM D624 Die B</td>
<td>with grain: 40 (228)</td>
<td>with grain: 50 (285)</td>
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<tr>
<td></td>
<td></td>
<td>across grain: 60 (342)</td>
<td>across grain: 70 (400)</td>
</tr>
<tr>
<td>Elongation, %, Min</td>
<td>ASTM D412 Die C</td>
<td>with grain: 15 across grain: 20</td>
<td>with grain: 15 across grain: 20</td>
</tr>
<tr>
<td>Hardness, Shore A</td>
<td>ASTM D2240</td>
<td>85 ± 8</td>
<td>90 ± 5</td>
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<tr>
<td>Ozone Resistance</td>
<td>ASTM D518 Method B</td>
<td>N/A</td>
<td>50 Hrs @ 38°C (100°F) in 100 pphm</td>
</tr>
<tr>
<td>Visual Observation under 7x Magnification</td>
<td>ASTM D2240</td>
<td>N/A</td>
<td>No cracks</td>
</tr>
</tbody>
</table>

Note: The information presented pertains to the 0.08” Symar® Super Tough masticated rubber product.

National Rubber Technologies makes no representations or warranties with respect to the suitability of materials for a particular purpose. Buyers and users must determine the safety and suitability of National Rubber Technologies’ products for their own purposes and assume all risk, responsibility, and liability for all injuries, losses, or damages arising from the application of the information or use of National Rubber Technologies’ products, whether or not occasioned by National Rubber Technologies’ negligence or based on strict product liability.

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