TYPICAL MATERIAL PROPERTIES

NYLON 66
Impact Modified
Heat Stabilized
UV Resistant*

DESCRIPTION
Commonly used in automotive applications, due to its resistance to impact, temperature, moisture, salt, and petroleum products. The impact modifiers provide some increase in flexibility and maintain it through varying temperatures and moisture conditions.

* Classified as “UV Resistant” due to the uniform dispersion of Carbon Black (less than 2%) or other UV absorbing additives that reduce deterioration of physical properties such as colors fading, surface chalking, loss of flexibility, brittleness and disintegration. This material has been proven to be UV resistant by a certified testing lab to withstand 5,000 hours of xenon arc (UV accelerated) exposure. The product tested was the SDCT312 which retained up to 85% of its original loop tensile strength with no deterioration of physical properties.

Commercial Name: Nylon 66, Impact Modified, Heat Stabilized, UV Resistant.
Catalog Code: PA66HIRHS UV Resistant (may also appear as HIRHS or IMHS on older products)
Chemical Name: Polyamide 66
Used On: Cable ties, clamps and automotive parts

GENERAL PERFORMANCE CHARACTERISTICS
Heat Stabilized Very good
High Impact Very good
Moisture Sensitivity Low, will absorb moisture but not become brittle when dry
UV Resistance Very good

PERFORMANCE ADDITIVES
Glass None
Mineral None
Olefin Up to 20% (Impact Modifier) Olefin does not absorb moisture
Carbon Black Yes, contains less than 2%
Halogens None

PROCESS ADDITIVES
Fillers None
Lubricants Internal
Shrink Additives None

PROCESSING
Heat stabilized modifier has aided in the mold filling of thin hinge like sections, reducing brittleness and signs of burning

CONDITIONING
None: Impact modifier helps maintain flexibility (material absorbs less moisture compared to standard Nylon 66)

CHEMICAL RESISTANCE
Acids Limited; attacked by strong acids
Bases Excellent at room temp.; attacked by strong bases at elevated temps.
Solvents Generally excellent; some absorption causing plasticization and dimension changes.
Gasoline Very good
Oil Good
Salt Water Very good
Sodium Chloride Very good
Zinc Chloride Some attack or considerable absorption possible, not suitable for long term contact
Calcium Chloride Little or no attack, little to some absorption, little to some reduction in mechanical properties.
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Impact Modified  
Heat Stabilized  
UV Resistant*

## MAJOR TOXIC ELEMENTS

No significant hazard associated with this material

## APPROVALS

Ford, Chrysler, GM & ASTM

## PROPERTIES CHART

<table>
<thead>
<tr>
<th></th>
<th>Dry</th>
<th>Units</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FLAMMABILITY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability @ 0.81, 1.5 &amp; 3.0 mm</td>
<td>HB</td>
<td>-</td>
<td>UL 94</td>
</tr>
<tr>
<td>Oxygen index</td>
<td>22</td>
<td>%O₂</td>
<td>ASTM D2863</td>
</tr>
<tr>
<td><strong>PHYSICAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.1</td>
<td>(1)</td>
<td>ASTM D792</td>
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<tr>
<td>Water Absorption – 24 hrs</td>
<td>0.9</td>
<td>%</td>
<td>ASTM D570</td>
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<tr>
<td><strong>MECHANICAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>62.1 (9000)</td>
<td>MPa (psi)</td>
<td>ASTM D638</td>
</tr>
<tr>
<td>Elongation @ Yield</td>
<td>5.0</td>
<td>%</td>
<td>ASTM D638</td>
</tr>
<tr>
<td>Elongation @ Break</td>
<td>35.0</td>
<td>%</td>
<td>ASTM D638</td>
</tr>
<tr>
<td>Flex Modulus</td>
<td>2275.3 (330000)</td>
<td>MPa (psi)</td>
<td>ASTM D790</td>
</tr>
<tr>
<td>Flex Strength</td>
<td>72.4 (10500)</td>
<td>MPa (psi)</td>
<td>ASTM D790</td>
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<tr>
<td>Notched Izod Impact @ -40°C (-40°F) @ 23°C (73°F)</td>
<td>138.8 (2.6)</td>
<td>J/m (ft-lbf/in)</td>
<td>ASTM D256</td>
</tr>
<tr>
<td></td>
<td>240.3 (4.5)</td>
<td></td>
<td></td>
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<tr>
<td><strong>THERMAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous Operating Temp</td>
<td>-40 to 110 (-40 to 230)</td>
<td>°C (°F)</td>
<td>(2)</td>
</tr>
<tr>
<td>RTI Strength @ 1.5 mm</td>
<td>65 (149)</td>
<td>°C (°F)</td>
<td>UL 746</td>
</tr>
<tr>
<td>Deflection Temp. @ 0.455 MPa (66 psi) @1.82 MPa (264 psi)</td>
<td>213 (415)</td>
<td>°C (°F)</td>
<td>ASTM D648</td>
</tr>
<tr>
<td></td>
<td>79 (175)</td>
<td></td>
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</tr>
</tbody>
</table>

(1) Quantity is unitless. Use g/cm³ to convert to other units.

(2) Values based on similar medium impact heat stabilized PA66 materials.

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This document is intended as a general guide, in the material selection for a product, but does not guarantee satisfactory performance. All materials selected must be thoroughly tested in its intended application to determine its suitability. Consult a HellermannTyton Representative for assistance in the final material selection.

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