

# Amilan™ U141

Toray Industries, Inc. - Polyamide 6

## General Information

### Product Description

Super high impact

### General

|                   |  |  |  |
|-------------------|--|--|--|
| Features          | <ul style="list-style-type: none"> <li>Chemical Resistant</li> </ul>   | <ul style="list-style-type: none"> <li>High Impact Resistance</li> </ul>   | <ul style="list-style-type: none"> <li>High Toughness</li> </ul>   |
| Uses              | <ul style="list-style-type: none"> <li>Appliance Components</li> <li>Automotive Applications</li> <li>Construction Applications</li> </ul> | <ul style="list-style-type: none"> <li>Electrical/Electronic Applications</li> <li>Office Automation Equipment</li> <li>Power/Other Tools</li> </ul> | <ul style="list-style-type: none"> <li>Rubber Replacement</li> <li>Sporting Goods</li> <li>White Goods &amp; Small Appliances</li> </ul> |
| Processing Method | <ul style="list-style-type: none"> <li>Injection Molding</li> </ul>  |  |  |
| ISO Designation   | <ul style="list-style-type: none"> <li>&gt;PA6-I&lt;</li> </ul>  |  |  |

## Properties<sup>1</sup>

| Physical  | Dry          | Conditioned | Unit                  | Test Method     |
|---|--------------|-------------|-----------------------|-----------------|
| Density (73°F)                                    | 1.06         | --          | g/cm <sup>3</sup>     | ISO 1183        |
| Molding Shrinkage <sup>2</sup> (0.118 in)         | 0.80 to 1.3  | --          | %                     | Internal Method |
| Water Absorption <sup>3</sup> (24 hr, 73°F)       | 0.70         | --          | %                     | ISO 62          |
| Water Absorption <sup>3</sup><br>Saturation, 73°F | 6.0          | --          | %                     | ISO 62          |
| Mechanical  | Dry          | Conditioned | Unit                  | Test Method     |
| Tensile Stress                                    |              |             |                       | ISO 527-2       |
| -40°F   | 11600        | 9860        | psi                   |                 |
| 73°F  | > 7250       | 4640        | psi                   |                 |
| Tensile Strain                                    |              |             |                       | ISO 527-2       |
| Break, -40°F                                      | 16           | 22          | %                     |                 |
| Break, 73°F                                       | > 50         | > 50        | %                     |                 |
| Flexural Modulus                                  |              |             |                       | ISO 178         |
| -40°F   | 334000       | 334000      | psi                   |                 |
| 73°F  | 218000       | 102000      | psi                   |                 |
| Flexural Stress                                   |              |             |                       | ISO 178         |
| -40°F   | 9430         | 13100       | psi                   |                 |
| 73°F  | 7980         | 4790        | psi                   |                 |
| Taber Abrasion Resistance                         |              |             |                       | ISO 9352        |
| 1000 Cycles                                       | 7.00 to 8.00 | --          | mg                    |                 |
| Impact  | Dry          | Conditioned | Unit                  | Test Method     |
| Charpy Notched Impact Strength                    |              |             |                       | ISO 179         |
| -40°F   | 16           | 18          | ft·lb/in <sup>2</sup> |                 |
| 73°F  | 50           | > 62        | ft·lb/in <sup>2</sup> |                 |
| Charpy Unnotched Impact Strength                  |              |             |                       | ISO 179         |
| 73°F  | No Break     | No Break    |                       |                 |
| Hardness  | Dry          | Conditioned | Unit                  | Test Method     |
| Rockwell Hardness                                 |              |             |                       | ISO 2039-2      |
| R-Scale, 73°F                                     | 112          | --          |                       |                 |

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| Thermal  | Dry                                    | Conditioned | Unit                    | Test Method |
|--|--|-------------|-------------------------|-------------|
| Deflection Temperature Under Load<br>66 psi, Unannealed  | 311                                    | --          | °F                      | ISO 75-2/B  |
| Deflection Temperature Under Load<br>264 psi, Unannealed | 131                                    | --          | °F                      | ISO 75-2/A  |
| Melting Temperature                                      | 437                                    | --          | °F                      | DSC         |
| Coefficient of Linear Thermal Expansion                  | 7 to 8                                 | --          | cm <sup>-5</sup> /cm/°C | ISO 11359-2 |
| Flammability   | Dry                                    | Conditioned | Unit                    | Test Method |
| Flame Rating (0.03 in)                                   | HB                                     | --          |                         | UL 94       |
| Additional Information                                   |  |             |                         |             |
| Dry  | Water absorption Moisture Content 2.1% |             |                         |             |

#### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> 80x80x3mm

<sup>3</sup> in water