

# Amilan™ U121

## Nylon 6

### TECHNICAL DATA

#### Product Description

Standard

#### Uses

- Appliance Components
- Automotive Applications
- Construction Applications
- Electrical/Electronic Applications
- Office Automation Equipment
- Power/Other Tools
- Rubber Replacement
- Sporting Goods
- White Goods & Small Appliances

#### Processing Method

- Injection Molding

#### ISO Designation

- >PA6-I<

#### Type

- Nylon6/High impact

#### ASTM & ISO Properties

| Physical                                    | Dry          | Water Absorption | Unit  | Test Method     |
|---------------------------------------------|--------------|------------------|-------|-----------------|
| Density (23°C)                              | 1.09         | --               | g/cm³ | ISO 1183        |
| Molding Shrinkage <sup>1</sup><br>(3.00 mm) | 1.20 to 1.30 | --               | %     | Internal Method |
| Water Absorption <sup>2</sup>               |              |                  |       | ISO 62          |
| 24 hr, 23°C                                 | 1.7          | --               | %     |                 |
| Saturation, 23°C                            | 8.0          | --               | %     |                 |
| Mechanical                                  | Dry          | Water Absorption | Unit  | Test Method     |
| Tensile Strength                            |              |                  |       | ISO 527-2       |
| -40°C                                       | 90           | 70               | MPa   |                 |
| 23°C                                        | 60           | 35               | MPa   |                 |
| Tensile Strain                              |              |                  |       | ISO 527-2       |
| Break, -40°C                                | 13           | 19               | %     |                 |
| Break, 23°C                                 | > 50         | > 50             | %     |                 |
| Flexural Modulus                            |              |                  |       | ISO 178         |
| -40°C                                       | 2500         | 2500             | MPa   |                 |
| 23°C                                        | 2000         | 800              | MPa   |                 |
| Flexural Stress                             |              |                  |       | ISO 178         |
| -40°C                                       | 115          | 100              | MPa   |                 |
| 23°C                                        | 80           | 35               | MPa   |                 |
| Taber Abrasion Resistance                   |              |                  |       | ISO 9352        |
| 1000 Cycles                                 | 6 to 7       | --               | mg    |                 |
| Impact                                      | Dry          | Water Absorption | Unit  | Test Method     |
| Charpy Notched Impact Strength              |              |                  |       | ISO 179         |
| -40°C                                       | 10.5         | 15.5             | kJ/m² |                 |
| 23°C                                        | 16.5         | 65.6             | kJ/m² |                 |
| Charpy Unnotched Impact Strength            |              |                  |       | ISO 179         |
| 23°C                                        | No Break     | No Break         |       |                 |
| Hardness                                    | Dry          | Water Absorption | Unit  | Test Method     |
| Rockwell Hardness                           |              |                  |       | ISO 2039-2      |
| R-Scale, 23°C                               | 114          | --               |       |                 |

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| Thermal                                 | Dry                                    | Water Absorption | Unit                   | Test Method |
|-----------------------------------------|----------------------------------------|------------------|------------------------|-------------|
| Deflection Temperature Under Load       |                                        |                  |                        |             |
| 0.45 MPa, Unannealed                    | 160                                    | --               | °C                     | ISO 75-2/B  |
| 1.8 MPa, Unannealed                     | 57                                     | --               | °C                     | ISO 75-2/A  |
| Melting Temperature                     | 225                                    | --               | °C                     | DSC         |
| Coefficient of Linear Thermal Expansion | 9 to 10                                | --               | cm <sup>3</sup> /cm/°C | ISO 11359-2 |
| Flammability                            | Dry                                    | Water Absorption | Unit                   | Test Method |
| Flame Rating (1.5 mm)                   | HB                                     | --               |                        | UL 94       |
| <b>Additional Information</b>           |                                        |                  |                        |             |
| Dry                                     | Water absorption Moisture Content 2.8% |                  |                        |             |

**Notes**
<sup>1</sup> 80x80x3mm

<sup>2</sup> in water

**Remarks for Handling**
**Safety Precautions**

1. Refer to the Material Safety data sheet for AMILAN™ before use.
2. During drying and molding of AMILAN™, volatile components which can irritate eyes, nose, and throat may be released. When such heat treatment is performed, appropriate local ventilation measures should be taken.
3. Sweep up and dispose of spilled pellets to prevent slipping.
4. Don't pile stocks too high in order to avoid injury caused by the product falling.

**Care in Handling**

1. The figures described herein are representative values of natural colors obtained based on the specific test method, and are NOT guaranteed values.
2. For our colored products, the figures described herein will vary depending on the type and amount of pigment, dye, and additive used.
3. The information contained herein is currently information we can reasonably obtain. The information may be revised without notice.
4. The information contained herein, including but not limited to application examples, does NOT represent, warrant or guarantee the quality or safety of your products. When using our products for your or third party's products, in consideration of various relevant laws and regulations, industrial property rights, product standards, self-regulatory standards, etc., please conduct product test etc. and confirm the quality or safety by yourself.
5. The basis that show the combustion resistance described herein is only the evaluation result in the test performed on the test piece prepared by the procedure in accordance with each specific standard. It can NOT be applied to the risk assessment in an actual fire. Note: For UL certification values, please refer to the Yellow card issued by UL (File No. E41797).
6. When using with medical devices, food packages, safety instruments or toys for infant, and so on, consult us about the concrete application and usage beforehand by all means. Do NOT use our products for any medical internal implantation.
7. Regarding export of our products and exports of products incorporating our products, please comply with relevant laws and regulations such as foreign exchange and foreign trade laws.
8. Under the chemical substance management system of each country, the chemical substance used in our products is regulated, and it may be necessary to apply separately or it may not be possible to import or export. If you are an exporter or importer of our products, please contact us for regulatory compliance in your country.
9. Refer to Safety Data Sheet for this our product before use.
10. We make NO representation, warranty or guarantee whether expressed or implied, in respect of fitness for a particular purpose and safety of our products for your products. You will be responsible for ascertaining the suitability of our products for your purpose and safety.
11. During drying and molding, volatile components which can irritate eyes, nose, and throat may be released. When such heat treatment is performed, appropriate local ventilation measures should be taken.
12. Sweep up and dispose of spilled pellets to prevent slipping.
13. Don't pile stocks too high in order to avoid injury caused by the product falling.