# Amilan™ CM1011G-30

## Toray Industries, Inc. - Polyamide 6

| General Information | | | |
|---|---|---|---|
| **Product Description** | | | |
| Standard, GF30% | | | |
| **General** | | | |
| Filler / Reinforcement | • Glass Fiber, 30% Filler by Weight | | |
| Features | • Chemical Resistant | • High Strength | |
| Uses | • Appliance Components<br>• Automotive Applications<br>• Automotive Electronics<br>• Automotive Under the Hood<br>• Construction Applications | • Electrical/Electronic Applications<br>• Office Automation Equipment<br>• Power/Other Tools<br>• Sporting Goods<br>• Switches | • Tanks<br>• Transmission Applications<br>• White Goods & Small Appliances |
| Processing Method | • Injection Molding | | |
| ISO Designation | • >PA6-GF30< | | |

| Properties [1] | | | | |
|---|---|---|---|---|
| **Physical** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Density (73°F) | 1.36 | -- | g/cm³ | ISO 1183 |
| Spiral Flow [2] | 13.0 | -- | in | Internal Method |
| Molding Shrinkage [3] | | | | Internal Method |
| Across Flow : 0.118 in | 0.50 to 0.80 | -- | % | |
| Flow : 0.118 in | 0.20 to 0.40 | -- | % | |
| Water Absorption [4] (24 hr, 73°F) | 1.1 | -- | % | ISO 62 |
| Water Absorption [4] | | | | ISO 62 |
| Saturation, 73°F | 6.4 | -- | % | |
| **Mechanical** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Tensile Stress | | | | ISO 527-2 |
| -40°F | 36300 | 32600 | psi | |
| 73°F | 26800 | 15200 | psi | |
| 176°F | 14500 | 10200 | psi | |
| Tensile Strain | | | | ISO 527-2 |
| Break, -40°F | 3.0 | 3.0 | % | |
| Break, 73°F | 3.0 | 4.0 | % | |
| Break, 176°F | 4.0 | 4.5 | % | |
| Flexural Modulus | | | | ISO 178 |
| -40°F | 1.71E+6 | 1.42E+6 | psi | |
| 73°F | 1.38E+6 | 740000 | psi | |
| 176°F | 682000 | 508000 | psi | |
| Flexural Stress | | | | ISO 178 |
| -40°F | 47100 | 45700 | psi | |
| 73°F | 40600 | 21000 | psi | |
| 176°F | 22500 | 15200 | psi | |
| Compressive Stress | | | | ISO 604 |
| -40°F | 36300 | 30500 | psi | |
| 73°F | 26100 | 17400 | psi | |
| 176°F | 13800 | 10200 | psi | |

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| Mechanical | Dry | Conditioned | Unit | Test Method |
|---|---|---|---|---|
| Shear Strength (73°F) | 12300 | -- | psi | ASTM D732 |
| Taber Abrasion Resistance | | | | ISO 9352 |
| 1000 Cycles | 12.0 | -- | mg | |
| Coefficient of Friction - vs. Metal [5] | 0.35 | -- | | Suzuki Method |
| **Impact** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Charpy Notched Impact Strength | | | | ISO 179 |
| -40°F | 4.8 | 7.9 | ft·lb/in² | |
| 73°F | 7.1 | 11 | ft·lb/in² | |
| Charpy Unnotched Impact Strength | | | | ISO 179 |
| -40°F | 33 | 38 | ft·lb/in² | |
| 73°F | 38 | 48 | ft·lb/in² | |
| **Hardness** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Rockwell Hardness | | | | ISO 2039-2 |
| M-Scale, 73°F | 93 | -- | | |
| R-Scale, 73°F | 120 | -- | | |
| **Thermal** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Deflection Temperature Under Load | | | | ISO 75-2/B |
| 66 psi, Unannealed | 435 | -- | °F | |
| Deflection Temperature Under Load | | | | ISO 75-2/A |
| 264 psi, Unannealed | 419 | -- | °F | |
| Melting Temperature | 437 | -- | °F | DSC |
| Specific Heat | 0.382 | -- | Btu/lb/°F | |
| Thermal Conductivity | 2.6 | -- | Btu·in/hr/ft²/°F | |
| Coefficient of Linear Thermal Expansion | 2 to 3 | -- | cm^-5/cm/°C | ISO 11359-2 |
| **Electrical** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Volume Resistivity | 1.0E+15 | 1.0E+12 | ohms·cm | IEC 60093 |
| Electric Strength | 510 | 460 | V/mil | IEC 60243-1 |
| Dielectric Constant | | | | IEC 60250 |
| 73°F, 50 Hz | 4.90 | 10.7 | | |
| 73°F, 1 kHz | 4.60 | 7.90 | | |
| 73°F, 1 MHz | 4.00 | 4.30 | | |
| Dissipation Factor | | | | IEC 60250 |
| 73°F, 50 Hz | 0.030 | 0.17 | | |
| 73°F, 1 kHz | 0.030 | 0.18 | | |
| 73°F, 1 MHz | 0.030 | 0.070 | | |
| Arc Resistance | 131 | 137 | sec | UL 746 |
| **Flammability** | **Dry** | **Conditioned** | **Unit** | **Test Method** |
| Flame Rating (0.06 in) | HB | HB | | UL 94 |
| **Additional Information** | | | | |
| Dry | Water Absorption Moisture Content 2.5% | | | |

### Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Melt Temperature: 500°F, Injection Pressure: 1.31E+4 psi, 0.0787 in

[3] 80x80x3mm

[4] in water

[5] Without Lubrication