# Generic Nylon 12

Polyamide 12

Generic

## Message:

This data represents typical values that have been calculated from all products classified as: Generic Nylon 12
This information is provided for comparative purposes only.

| General Information | | | |
|---|---|---|---|
| **Physical** | **Nominal Value** | **Unit** | **Test Method** |
| Specific Gravity | | | |
| -- | 0.980 - 1.23 | g/cm³ | ASTM D792 |
| 23°C | 0.980 - 1.23 | g/cm³ | ISO 1183 |
| -- | 1030 | kg/m³ | ISO 1183 [1] |
| Apparent Density | 0.34 - 0.52 | g/cm³ | ISO 60 |
| Melt Mass-Flow Rate (MFR) (235°C/2.16 kg) | 1.0 - 20 | g/10 min | ISO 1133 |
| Melt volume-flow rate | 35.8 | cm³/10min | ISO 1133 [2] |
| Molding Shrinkage | | | |
| Flow: 23°C | 0.58 - 1.7 | % | ASTM D955 |
| 23°C | 0.58 - 1.5 | % | ISO 294-4 |
| Water Absorption | | | |
| 23°C, 24 hr | 0.18 - 0.36 | % | ASTM D570 |
| 23°C, 24 hr | 0.10 - 0.73 | % | ISO 62 |
| Saturated, 23°C | 0.70 - 1.5 | % | ASTM D570 |
| Saturated, 23°C | 1.2 - 1.5 | % | ISO 62 |
| Saturation | 1.4 | % | ISO 62 [3] |
| Equilibrium, 23°C, 50% RH | 0.47 - 0.73 | % | ISO 62 |
| Viscosity Number | 178 - 191 | cm³/g | ISO 307 |
| **Hardness** | **Nominal Value** | **Unit** | **Test Method** |
| Rockwell Hardness | | | |
| 23°C | 79 - 110 | | ASTM D785 |
| 23°C | 62 - 106 | | ISO 2039-2 |
| Durometer Hardness | | | |
| 23°C | 72 - 83 | | ASTM D2240 |
| 23°C | 69 - 82 | | ISO 868 |
| Ball Indentation Hardness | 67.3 - 193 | MPa | ISO 2039-1 |
| **Mechanical** | **Nominal Value** | **Unit** | **Test Method** |
| Tensile Modulus | | | |
| 23°C | 273 - 2280 | MPa | ASTM D638 |
| 23°C | 80.0 - 2380 | MPa | ISO 527-2 |
| -- | 1090 | MPa | ISO 527-2 [4] |

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|---|---|---|---|
| Tensile Strength | | | |
| Yield, 23°C | 24.7 - 66.9 | MPa | ASTM D638 |
| Yield, 23°C | 23.7 - 50.8 | MPa | ISO 527-2 |
| Yield | 33.1 | MPa | ISO 527-2 [5] |
| Fracture, 23°C | 30.7 - 69.5 | MPa | ASTM D638 |
| Fracture, 23°C | 32.0 - 61.8 | MPa | ISO 527-2 |
| 23°C | 34.2 - 45.6 | MPa | ASTM D638 |
| 23°C | 9.50 - 42.0 | MPa | ISO 527-2 |
| Tensile Elongation | | | |
| Yield, 23°C | 5.0 - 31 | % | ASTM D638 |
| Yield, 23°C | 3.2 - 21 | % | ISO 527-2 |
| Yield | 16 | % | ISO 527-2 [6] |
| Fracture, 23°C | 1.0 - 510 | % | ASTM D638 |
| Fracture, 23°C | 0.60 - 200 | % | ISO 527-2 |
| Nominal Tensile Strain at Break | | | |
| 23°C | 47 - 51 | % | ISO 527-2 |
| -- | 49 - 50 | % | ISO 527-2 [7] |
| Flexural Modulus | | | |
| 23°C | 200 - 1810 | MPa | ASTM D790 |
| 23°C | 110 - 1630 | MPa | ISO 178 |
| Flexural Strength | | | |
| 23°C | 15.7 - 98.6 | MPa | ASTM D790 |
| 23°C | 18.5 - 61.0 | MPa | ISO 178 |
| Coefficient of Friction | 0.060 - 0.41 | | ASTM D1894 |
| **Impact** | **Nominal Value** | **Unit** | **Test Method** |
| Charpy Notched Impact Strength | | | |
| 23°C | 1.5 - 20 | $kJ/m^2$ | ISO 179 |
| -30°C | 7.03 | $kJ/m^2$ | ISO 179/1eA [8] |
| 23°C | 12.1 | $kJ/m^2$ | ISO 179/1eA [9] |
| Charpy Unnotched Impact Strength | | | |
| 23°C | 3.0 - 100 | $kJ/m^2$ | ISO 179 |
| -30°C | 80.0 | $kJ/m^2$ | ISO 179/1eU [10] |
| 23°C | 91.5 | $kJ/m^2$ | ISO 179/1eU [11] |
| Notched Izod Impact | | | |
| 23°C | 25 - 850 | J/m | ASTM D256 |
| 23°C | 4.0 - 13 | $kJ/m^2$ | ISO 180 |
| Unnotched Izod Impact (23°C) | 680 - 1100 | J/m | ASTM D256 |
| **Thermal** | **Nominal Value** | **Unit** | **Test Method** |
| Deflection Temperature Under Load | | | |
| 0.45 MPa, not annealed | 92.0 - 160 | °C | ASTM D648 |
| 0.45 MPa, not annealed | 77.6 - 136 | °C | ISO 75-2/B |
| 0.45 MPa | 130 | °C | ISO 75-2 [12] |

| | | | |
|---|---|---|---|
| 1.8 MPa, not annealed | 47.6 - 78.8 | °C | ASTM D648 |
| 1.8 MPa, not annealed | 44.8 - 51.3 | °C | ISO 75-2/A |
| 1.8 MPa | 50.5 | °C | ISO 75-2 [13] |
| Continuous Use Temperature | 88.8 - 150 | °C | ASTM D794 |
| Glass Transition Temperature | 110 - 160 | °C | ISO 11357-2 |
| Vicat Softening Temperature | | | |
| -- | 129 - 177 | °C | ISO 306 |
| 50°C/h, B (50N) | 138 | °C | ISO 306 [14] |
| Melting Temperature | | | |
| -- | 174 - 190 | °C | |
| -- | 178 | °C | ISO 11357-3 |
| -- | 175 - 184 | °C | ISO 3146 |
| -- [15] | 175 | °C | ISO 11357-3 [16] |
| Linear thermal expansion coefficient | | | |
| Flow | 9.9E-5 - 1.3E-4 | cm/cm/°C | ASTM D696 |
| Flow | 8.8E-5 - 1.8E-4 | cm/cm/°C | ISO 11359-2 |
| Flow | 1.2E-4 | cm/cm/°C | ISO 11359-2 [17] |
| Lateral | 9.0E-5 - 1.8E-4 | cm/cm/°C | ISO 11359-2 |
| Specific Heat (23°C) | 2270 - 2350 | J/kg/°C | ASTM C351 |
| Thermal Conductivity (23°C) | 0.25 - 0.48 | W/m/K | ISO 8302 |
| **Electrical** | **Nominal Value** | **Unit** | **Test Method** |
| Surface Resistivity | | | |
| -- | 50 - 2.5E+12 | ohms | IEC 60093 |
| -- | 1.0E+11 - 1.1E+14 | ohms | IEC 60093 [18] |
| Volume Resistivity | | | |
| 23°C | 5.1E+3 - 2.5E+11 | ohms·cm | ASTM D257 |
| 23°C | 1.0E+2 - 2.5E+14 | ohms·cm | IEC 60093 |
| -- | 4.0 - 1.0E+12 | ohms·m | IEC 60093 [19] |
| Dielectric Strength | | | |
| 23°C | 30 - 90 | kV/mm | IEC 60243-1 |
| -- | 35 | kV/mm | IEC 60243-1 [20] |
| Relative Permittivity (23°C) | 3.50 | | IEC 60250 |
| Dissipation Factor (23°C) | 0.026 - 0.19 | | IEC 60250 |
| Comparative Tracking Index | | | |
| -- | 587 - 600 | V | IEC 60112 |
| -- | 594 | | IEC 60112 [21] |
| Insulation Resistance (23°C) | 1.0E+3 - 2.5E+12 | ohms | IEC 60167 |
| **Flammability** | **Nominal Value** | **Unit** | **Test Method** |
| Oxygen Index | 21 | % | ISO 4589-2 [22] |
| **Injection** | **Nominal Value** | **Unit** | |
| Drying Temperature | 74.9 - 105 | °C | |
| Drying Time | 3.0 - 4.5 | hr | |

| | | |
|---|---|---|
| Suggested Max Moisture | 0.030 - 0.50 | % |
| Rear Temperature | 199 - 241 | °C |
| Middle Temperature | 204 - 250 | °C |
| Front Temperature | 210 - 260 | °C |
| Nozzle Temperature | 216 - 256 | °C |
| Processing (Melt) Temp | 209 - 274 | °C |
| Mold Temperature | 30.0 - 92.0 | °C |
| Injection Pressure | 85.3 - 87.9 | MPa |
| Back Pressure | 0.258 - 0.525 | MPa |
| Screw Speed | 45 - 75 | rpm |

| Injection instructions |
|---|
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| Extrusion | Nominal Value | Unit |
|---|---|---|
| Drying Temperature | 79.9 - 82.4 | °C |
| Drying Time | 3.9 - 4.0 | hr |
| Suggested Max Moisture | 0.030 - 0.10 | % |
| Melt Temperature | 203 - 247 | °C |

| Extrusion instructions |
|---|
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| NOTE | |
|---|---|
| 1. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 2. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 3. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 4. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 5. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 6. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 7. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 8. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 9. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 10. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 11. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |
| 12. | ??????,?? ISO 10350 ??? 23°C/50%r.h. ??? |

| | |
|---|---|
| 13. | ??????,?? ISO 10350 ???<br>23°C/50%r.h. ??? |
| 14. | ??????,?? ISO 10350 ???<br>23°C/50%r.h. ??? |
| 15. | 10 °C/min |
| 16. | ??????,?? ISO 10350 ???<br>23°C/50%r.h. ??? |
| 17. | ??????,?? ISO 10350 ???<br>23°C/50%r.h. ??? |
| 18. | ??????,?? ISO 10350 ???<br>23°C/50%r.h. ??? |
| 19. | ??????,?? ISO 10350 ???<br>23°C/50%r.h. ??? |
| 20. | ??????,?? ISO 10350 ???<br>23°C/50%r.h. ??? |
| 21. | ??????,?? ISO 10350 ???<br>23°C/50%r.h. ??? |
| 22. | ??????,?? ISO 10350 ???<br>23°C/50%r.h. ??? |



## Recommended distributors for this material

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