# PLASTRON®

Long Fiber Reinforced Thermoplastics（LFT）

## Grade Compositions

POLYPLASTICS CO., LTD.

# PLASTRON® LFT
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PLASTRON® LFT is a material that continuous reinforced fibers (glass and carbon fibers, etc.) are encapuslated with the pellet in the same length and direction.
It is a material that combines rigidity and high impact strength, which was not possible with conventional fiber reinforced resins, and expands the possibility of thermoplasticization of metals and FRP.

## PLASTRON® LFT Grade Compositions

| Item | Unit | Test method | PP block copolymer | | | | | PP homopolymer |
|---|---|---|---|---|---|---|---|---|
| | | | Long glass fiber reinforced | | | | | Long glass fiber reinforced |
| | | | PP-GF20-01 | PP-GF30-01 | PP-GF40-01 | PP-GF40-11 | PP-GF50-01 | PP-GF40-02 |
| Density | g/cm$^3$ | ISO 1183 | 1.03 | 1.12 | 1.22 | 1.22 | 1.33 | 1.22 |
| Tensile strength | MPa | ISO 527-1,2 | 90 | 110 | 130 | 130 | 135 | 135 |
| Flexural strength | MPa | ISO 178 | 130 | 170 | 190 | 205 | 200 | 200 |
| Flexural modulus | MPa | ISO 178 | 4,400 | 6,400 | 8,500 | 8,700 | 11,000 | 8,900 |
| Charpy notched impact strength (23℃) | kJ/m$^2$ | ISO 179/1eA | 20 | 30 | 40 | 40 | 50 | 40 |
| Charpy notched impact strength (-40℃) | kJ/m$^2$ | ISO 179/1eA | 25 | 35 | 40 | 40 | - | 40 |
| Temperature of deflection under load (1.8MPa) | ℃ | ISO 75-1,2 | 157 | 160 | 161 | 162 | 161 | 162 |

| Item | Unit | Test method | PP homopolymer | PP | | | PA6 | |
|---|---|---|---|---|---|---|---|---|
| | | | Long glass fiber reinforced | Long carbon fiber reinforced | | Long cellulose fiber reinforced | Long glass fiber reinforced | |
| | | | PP-GF50-02 | PP-CF20-M1 | PP-CF40-11 | PP-RF40-02 | PA6-GF50-01 | |
| | | | | | | | Dry | 1.3% moist |
| Density | g/cm$^3$ | ISO 1183 | 1.33 | 1.00 | 1.12 | 1.07 | 1.57 | — |
| Tensile strength | MPa | ISO 527-1,2 | 140 | 130 | 160 | 130 | 280 | 210 |
| Flexural strength | MPa | ISO 178 | 210 | 180 | 250 | 170 | 430 | 320 |
| Flexural modulus | MPa | ISO 178 | 11,500 | 10,500 | 20,000 | 6,200 | 15,500 | 11,500 |
| Charpy notched impact strength (23℃) | kJ/m$^2$ | ISO 179/1eA | 45 | 15 | 20 | 55 | 50 | 50 |
| Charpy notched impact strength (-40℃) | kJ/m$^2$ | ISO 179/1eA | 45 | — | 20 | — | 50 | — |
| Temperature of deflection under load (1.8MPa) | ℃ | ISO 75-1,2 | 162 | 162 | 161 | 160 | 220 | — |

All figures in the table are the typical values of the material and not the minimum values of the material specifications.
All grades are subjected to Japan's Ministerial Ordinance for Export Trade Control.

**Due to ongoing research and development,**
**the data contained in this catalog is subject to change without notice.**
**The latest data can be found on our Website.**
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| Item | Unit | Test method | PA6 | | | | | PAMXD6 |
|---|---|---|---|---|---|---|---|---|
| | | | Long glass fiber reinforced | | Long carbon fiber reinforced | | | Long glass fiber reinforced |
| | | | PA6-GF60-01 | | PA6-CF30-01 | | PA6-CF40-01 | PAX-GF50-02 |
| | | | Dry | 1.0% moist | Dry | 1.1% moist | Dry | Dry |
| Density | g/cm$^3$ | ISO 1183 | 1.70 | — | 1.28 | — | 1.32 | 1.64 |
| Tensile strength | MPa | ISO 527-1,2 | 300 | 220 | 300 | 270 | 310 | 270 |
| Flexural strength | MPa | ISO 178 | 450 | 340 | 410 | 340 | 450 | 390 |
| Flexural modulus | MPa | ISO 178 | 20,000 | 15,000 | 22,000 | 16,000 | 28,000 | 18,500 |
| Charpy notched impact strength (23℃) | kJ/m$^2$ | ISO 179/1eA | 60 | 55 | 21 | 22 | 28 | 45 |
| Charpy notched impact strength (-40℃) | kJ/m$^2$ | ISO 179/1eA | 60 | — | — | — | — | 45 |
| Temperature of deflection under load (1.8MPa) | ℃ | ISO 75-1,2 | 220 | — | 221 | — | 222 | 232 |

| Item | Unit | Test method | PAMXD6 | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Long glass fiber reinforced | | | Long carbon fiber reinforced | | |
| | | | PAX-GF50-02 | PAX-GF60-02 | | PAX-CF30-02 | | PAX-CF40-02 |
| | | | 0.7% moist | Dry | 0.5% moist | Dry | 1.0% moist | Dry |
| Density | g/cm$^3$ | ISO 1183 | — | 1.77 | — | 1.35 | — | 1.39 |
| Tensile strength | MPa | ISO 527-1,2 | 260 | 280 | 270 | 330 | 280 | 330 |
| Flexural strength | MPa | ISO 178 | 370 | 470 | 455 | 470 | 440 | 500 |
| Flexural modulus | MPa | ISO 178 | 17,000 | 22,500 | 21,500 | 25,000 | 21,000 | 33,000 |
| Charpy notched impact strength (23℃) | kJ/m$^2$ | ISO 179/1eA | 40 | 53 | 50 | 23 | 25 | 25 |
| Charpy notched impact strength (-40℃) | kJ/m$^2$ | ISO 179/1eA | — | 53 | — | — | — | 25 |
| Temperature of deflection under load (1.8MPa) | ℃ | ISO 75-1,2 | — | 232 | — | 235 | — | 235 |

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# PLASTRON® LFT Grade Compositions

| Item | Unit | Test method | PAMXD6 | PA9T | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Long carbon fiber reinforced | Long glass fiber reinforced | | Long carbon fiber reinforced | | |
| | | | PAX-CF40-02 | PA9T-GF50-01 | | PA9T-CF30-01 | PA9T-CF40-01 | |
| | | | 0.7% moist | Dry | 0.5% moist | Dry | Dry | 0.6% moist |
| Density | $g/cm^3$ | ISO 1183 | — | 1.58 | — | 1.28 | 1.33 | — |
| Tensile strength | MPa | ISO 527-1,2 | 310 | 245 | 220 | 350 | 360 | 350 |
| Flexural strength | MPa | ISO 178 | 440 | 370 | 330 | 490 | 550 | 530 |
| Flexural modulus | MPa | ISO 178 | 30,000 | 16,000 | 15,500 | 22,500 | 29,000 | 28,000 |
| Charpy notched impact strength (23℃) | $kJ/m^2$ | ISO 179/1eA | 26 | 40 | 32 | 20 | 45 | 50 |
| Charpy notched impact strength (-40℃) | $kJ/m^2$ | ISO 179/1eA | — | 40 | — | — | 45 | — |
| Temperature of deflection under load (1.8MPa) | ℃ | ISO 75-1,2 | — | 295 | — | 295 | 295 | — |

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