DESIGNERDATA

Thermo plastics

# PP

Partly crystalline, a-polar thermoplast with crystalinity between 60% and 70%; in many grades it's available, pure as well as in blends with fill- and/or re-enforcing additives. Polyolefin, available as homo-, block-co- or random-copolymer.

**Specific properties**
Mass: 0,895 - 0,92 g//cm3
Mechanical properties: Relatively stiff and tough, also at low temperatures, but depending on the crystallinity. Relatively high hardness at low charpy values.
Very suitable for designing film-hinges.

Physiological properties:
PP is odourless and tasteless. It is well used in skin contact applications.

Filler and re-enforcing materials
PP is applied with a lot of filler and re-enforcing materials like chalk, wood dust, glas fiber, long glas fibers, glass balls, carbon black. Specially coated fillers in reaction with additives and mineral fillers increase the scratch resistance of the PP-surface.

**Thermal properties**
Heat resistant to ca. 110°C. At 0°C and lower, the material becomes very brittle. When it burns, it smells like a candle.

**Colour/surface**
The natural colour is milky tranparent to opaque.
Can be colored in almost any colour, opaque as well as translucent; with high surface gloss.

**Processing**
Very well injection mouldable;
When not pre-treated, badly gluable due to the a-polar surface.
Good weldable through different weld techniques; can be bonded to TPE's (2C injection moulding).

of all kinds of electrical equipment, toys, car interiors, suitcases, drinking cups. garden furniture, industrial sockets etc.

# Polypropylene (cop.)

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|---|---|---|
| Young's modulus | 1325 | MPa |
| Shear modulus | 400 | MPa |
| Tensile strength | 34 | MPa |
| Elongation | 450 | % |
| Compressive strength | 46.5 | MPa |
| Fatigue | 24 | MPa |
| Bending strength | 41 | MPa |
| Hardness | 97.5 | Rockwell |
| Impact strength | 0.685 | J/cm |
| Yield strength | 0 | MPa |
| Thermal expansion | 104 | E-6/K |
| Thermal conductivity | 0.17 | W/m*K |
| Specific heat | 1963.5 | J/kg*K |
| Vicat | 90 | °C |
| Melting temperature | 165 | °C |
| Glass temperature | -10 | °C |
| Minimum service temperature | -10 | °C |
| Maximum service temperature | 105 | °C |
| Density | 904 | $kg/m^3$ |
| Resistivity | 1E+21 | $Ohm*mm^2/m$ |
| Breakdown potential | 57.5 | kV/mm |
| Dielectric loss factor | 0.001 | |
| Friction coefficient | 0.4 | |
| Refraction index | 1.49 | |
| Shrinkage | 1.75 | % |
| Water absorption | 0.01 | % |