# Technical data sheet PVA

Ultimaker

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| Chemical name | Polyvinyl alcohol |
| Description | PVA (polyvinyl alcohol) is a water soluble support material for multi-extrusion 3D printing. With a good thermal stability, Ultimaker PVA is ideal for printing complex models that require supports for large overhangs, deep internal cavities, and intricate geometries. Designed for a seamless 3D printing experience, our PVA provides good adhesion to both PLA and Nylon. |
| Key features | Good thermal stability resulting in better degradation resistance compared to other PVA filaments; less moisture sensitive than other PVA filaments; great adhesion to both PLA and Nylon; safe dissolution in tap water (no harmful chemicals required); biodegradable with no hazardous by-products. |
| Applications | Reliable 3D printing of water soluble support structures for PLA and Nylon build materials. PVA molds |
| Non-suitable for | Reliable 3D printing of water soluble support structures for ABS or CPE build materials |

| Filament specifications | Value | Method |
|---|---|---|
| Diameter | 2.85±0.10 mm | - |
| Max roundness deviation | 0.10 mm | - |
| Net filament weight | 350 g / 750 g | - |
| Filament length | ~45 m / ~96 m | - |

| Color information | Color | Color code |
|---|---|---|
| | Natural | n/a |

| Mechanical properties (*) | Injection molding | | 3D printing | |
|---|---|---|---|---|
| | **Typical value** | **Test method** | **Typical value** | **Test method** |
| Tensile modulus | 3860 MPa | ISO 527 (1 mm/min) | - | - |
| Tensile stress at yield | - | - | - | - |
| Tensile stress at break | 78 MPa | ISO 527 (50 mm/min) | - | - |
| Elongation at yield | - | - | - | - |
| Elongation at break | 9.90 % | ISO 527 (50 mm/min) | - | - |
| Flexural strength | - | - | - | - |
| Flexural modulus | - | - | - | - |
| Izod impact strength, notched (at 23˚C) | - | - | - | - |
| Charpy impact strength, unnotched (at 23˚C) | 1.6 kJ/m$^2$ | ISO 179 | - | - |
| Hardness | - | - | - | - |

| Thermal properties | Typical value | Test method |
|---|---|---|
| Melt mass-flow rate (MFR) | 17-21 g/10 min | (190 ˚C, 21.6 kg) |
| Heat deflection (HDT) at 0.455 MPa | - | - |
| Heat deflection (HDT) at 1.82 MPa | - | - |
| Vicat softening temperature at 10N | 60.2 ˚C | ISO 306 |
| Glass transition | - | - |
| Coefficient of thermal expansion | - | - |
| Melting temperature | 163 ˚C | ISO 11357 |
| Thermal shrinkage | - | - |

| Other properties | Typical value | Test method |
|---|---|---|
| Specific gravity | 1.23 | ASTM D1505 |
| Flame classification | - | - |

(*) See notes.

## Notes

Properties reported here are average of a typical batch. Ultimaker is constantly working on extending the TDS data.

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