



## Comparison Between Vydyne 21 SPF & Zytel 101L

Property	Vydyne r-21SPF (Dry)	Zytel 101L
Tensile Modulus	2900 MPa	3210 MPa
Tensile Stress at Yield	89 MPa	85 MPa
Tensile Strain at Yield	4.8%	4%
Flexural Modulus	3300 MPa	3040 MPa
Flexural Strength	105 MPa	N/A

Tensile Modulus (23°C)	1900 MPa	1900 MPa
Tensile Stress Yield (23°C)	60 MPa	60 MPa
Tensile Stress Break (23°C)	49 MPa	49 MPa
Tensile Strain Yield (23°C)	20%	20%
Tensile Strain Break (23°C)	76%	76%
Flexural Modulus (23°C)	1100 MPa	1100 MPa
Flexural Strength (23°C)	30 MPa	20 MPa

Charpy Notched	6 / 23 kJ/m	5.7 kJ/m
Charpy Unnotched	N / N kJ/m	-
Izod Notched	6 / 23 kJ/m	5 kJ/m

HDT (1.8 MPa, Unannealed)	72 / - °C	67 °C
HDT (0.45 MPa, Unannealed)	210 / - °C	-
Melting Temperature	260 °C	260 °C
CLTE (Flow/Transverse, 23-55°C)	100 / 100 E-6/K	100 / 100 E-6/K

RTI Electrical (various thicknesses)	130 °C	130 °C
RTI Impact/Strength	75-85 °C	75-85 °C

Drying Temp/Time	70°C / 1-3h	Implied low water
Melt Temp	285-300°C	Similar
Nozzle Temp	280-300°C	-
Mold Temp	65-95°C	-

Density	1.14 g/cm <sup>3</sup>	1.13 g/cm <sup>3</sup>
Molding Shrinkage (Across/Flow, 2mm)	2.0 / 2.0%	-
Water Absorption (24h)	1.2%	0.11% (batch)
Water Content Spec	-	0.00-0.18%
Relative Viscosity	49.8	49.8 (46.3-52.7)
Viscosity Number (Formic Acid)	137.7	137.7 (132-142) cm <sup>3</sup> /g

### Summary -

Both are lubricated, unfilled PA66 resins for fast-cycle injection molding with high strength, rigidity, chemical/oil resistance, and 260°C melt point. Vydine offers more comprehensive datasheets covering dry/conditioned states, electrical, flammability, and approvals (FDA/UL/RoHS/automotive); Zytel provides batch-specific values focused on viscosity and annual tests.

#### Key Similarities:

- Density ~1.13-1.14 g/cm<sup>3</sup>; tensile yield ~85-89 MPa; HDT (1.8MPa) 67-72°C.
- Impact (23°C notched): Vydine 6/23 kJ/m (dry/cond.), Zytel ~5-5.7 kJ/m.
- Processing: Dry 70°C, melt 285-300°C.

#### Key Differences:

- Modulus: Zytel higher tensile (3210 MPa) vs. Vydine flexural (3300 MPa dry)
- Vydine excels in conditioned toughness/elongation; broader specs (RTI 130°C elec., V-2 UL94).
- Zytel emphasizes tight viscosity control (RV 46-53, formic 132-142).
- Overall: Nearly equivalent for general use; choose Vydine for detailed performance data/approvals, Zytel for consistent batch viscosity.