

# Zytel® HTNFR53G50NH BK337

## HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTNFR53G50NH BK337 is a 50% glass reinforced, flame retardant high performance polyamide resin for structural applications. It uses a non-halogenated flame retardant.

### Product information

|                      |                  |           |
|----------------------|------------------|-----------|
| Resin Identification | PA-GF50FR(40)    | ISO 1043  |
| Part Marking Code    | >PA-GF50FR(40)<  | ISO 11469 |
| Part Marking Code    | >PPA-GF50FR(40)< | SAE J1344 |

### Rheological properties

|                              | dry/cond. |   |                 |
|------------------------------|-----------|---|-----------------|
| Moulding shrinkage, parallel | 0.2/-     | % | ISO 294-4, 2577 |
| Moulding shrinkage, normal   | 0.5/-     | % | ISO 294-4, 2577 |

### Typical mechanical properties

|                                       | dry/cond. |                   |              |
|---------------------------------------|-----------|-------------------|--------------|
| Tensile modulus                       | 17700/-   | MPa               | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min      | 195/-     | MPa               | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min      | 2.5/-     | %                 | ISO 527-1/-2 |
| Flexural modulus                      | 17200/-   | MPa               | ISO 178      |
| Flexural strength                     | 310/-     | MPa               | ISO 178      |
| Charpy impact strength, 23°C          | 72/-      | kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy impact strength, -40°C         | 73/-      | kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy notched impact strength, 23°C  | 12/-      | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy notched impact strength, -40°C | 12/-      | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Poisson's ratio                       | 0.33/-    |                   |              |

### Thermal properties

|                                                          | dry/cond. |       |                |
|----------------------------------------------------------|-----------|-------|----------------|
| Melting temperature, 10°C/min                            | 258/*     | °C    | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa            | 236/*     | °C    | ISO 75-1/-2    |
| Coeff. of linear therm. expansion, parallel, -40-23°C    | 9/*       | E-6/K | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), parallel | 14/*      | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, parallel, 55-160°C    | 13/*      | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal, -40-23°C      | 31/*      | E-6/K | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal   | 43/*      | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal, 55-160°C      | 84/*      | E-6/K | ISO 11359-1/-2 |

### Flammability

|                                      | dry/cond. |       |                 |
|--------------------------------------|-----------|-------|-----------------|
| Burning Behav. at 1.5mm nom. thickn. | V-0/*     | class | IEC 60695-11-10 |

### Electrical properties

|                            | dry/cond. |       |               |
|----------------------------|-----------|-------|---------------|
| Volume resistivity         | >1E13/-   | Ohm.m | IEC 62631-3-1 |
| Electric strength          | 31/-      | kV/mm | IEC 60243-1   |
| Comparative tracking index | 600/-     |       | IEC 60112     |

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### Physical/Other properties

|                          |           |                   |                |
|--------------------------|-----------|-------------------|----------------|
|                          | dry/cond. |                   |                |
| Humidity absorption, 2mm | 1.4 / *   | %                 | Sim. to ISO 62 |
| Density                  | 1640 / -  | kg/m <sup>3</sup> | ISO 1183       |

### Injection

|                                 |         |
|---------------------------------|---------|
| Drying Recommended              | yes     |
| Drying Temperature              | 100 °C  |
| Drying Time, Dehumidified Dryer | 6 - 8 h |
| Processing Moisture Content     | ≤0.1 %  |
| Melt Temperature Optimum        | 290 °C  |
| Min. melt temperature           | 280 °C  |
| Max. melt temperature           | 300 °C  |
| Min. mould temperature          | 90 °C   |
| Max. mould temperature          | 110 °C  |

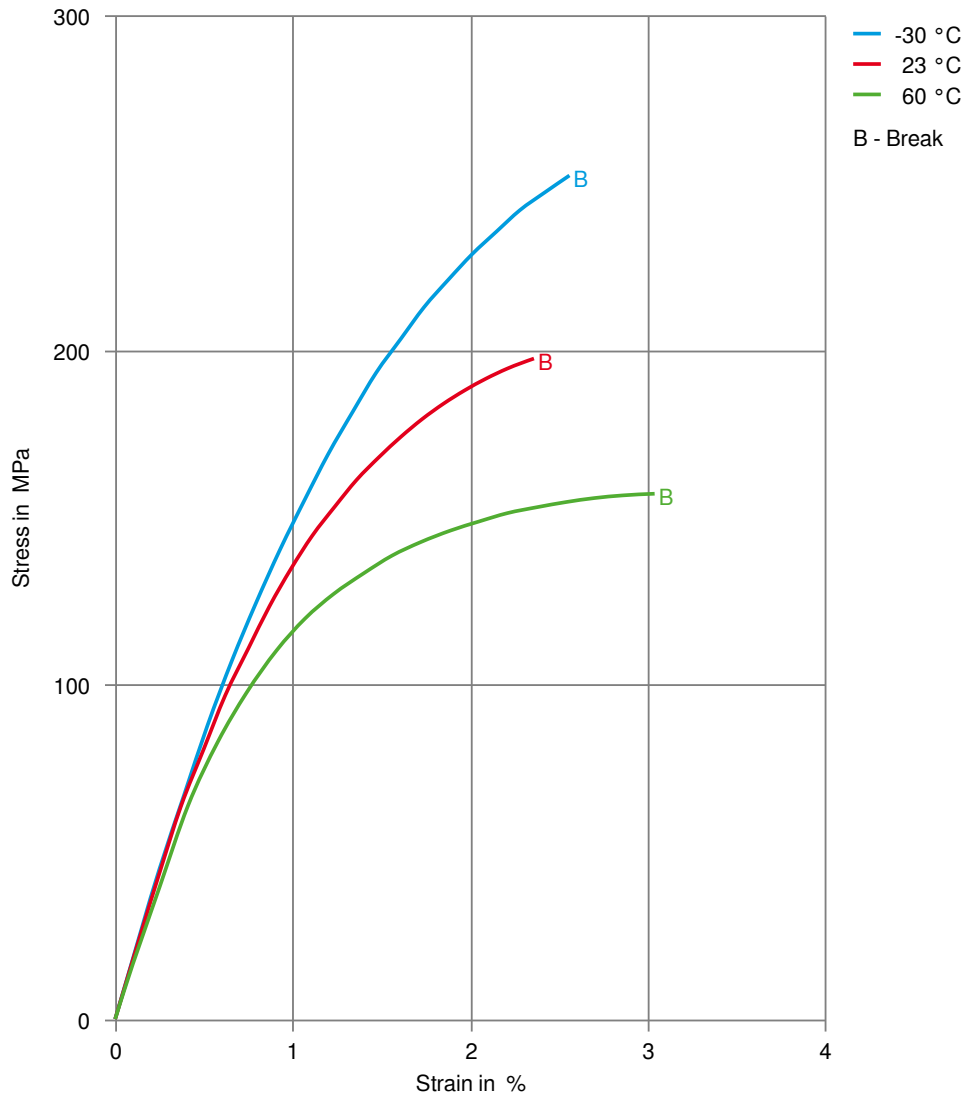
### Characteristics

|                         |                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------|
| Processing              | Injection Moulding                                                                   |
| Delivery form           | Pellets                                                                              |
| Additives               | Release agent, Flame retardant, Non-halogenated/Red phosphorous free flame retardant |
| Special characteristics | Flame retardant                                                                      |

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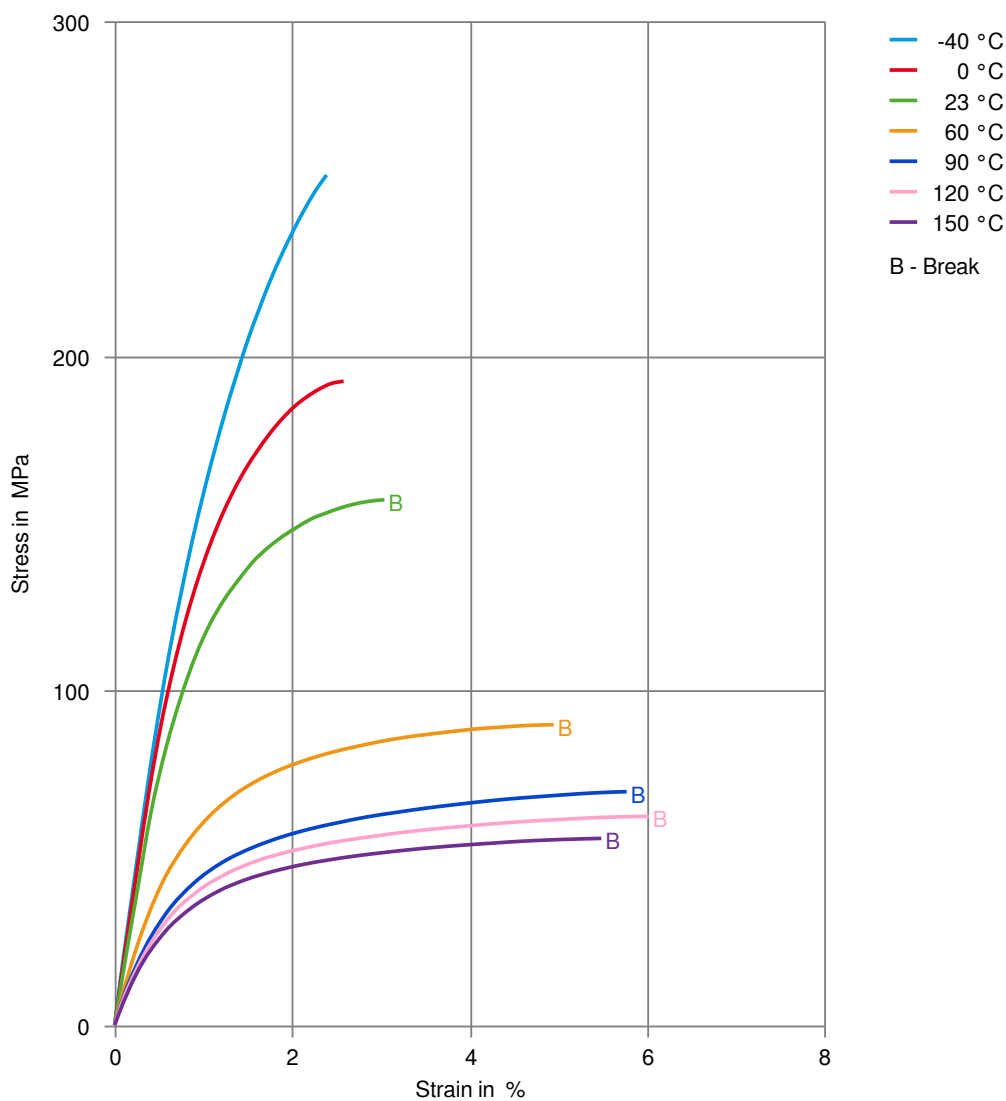
## Stress-strain (dry)



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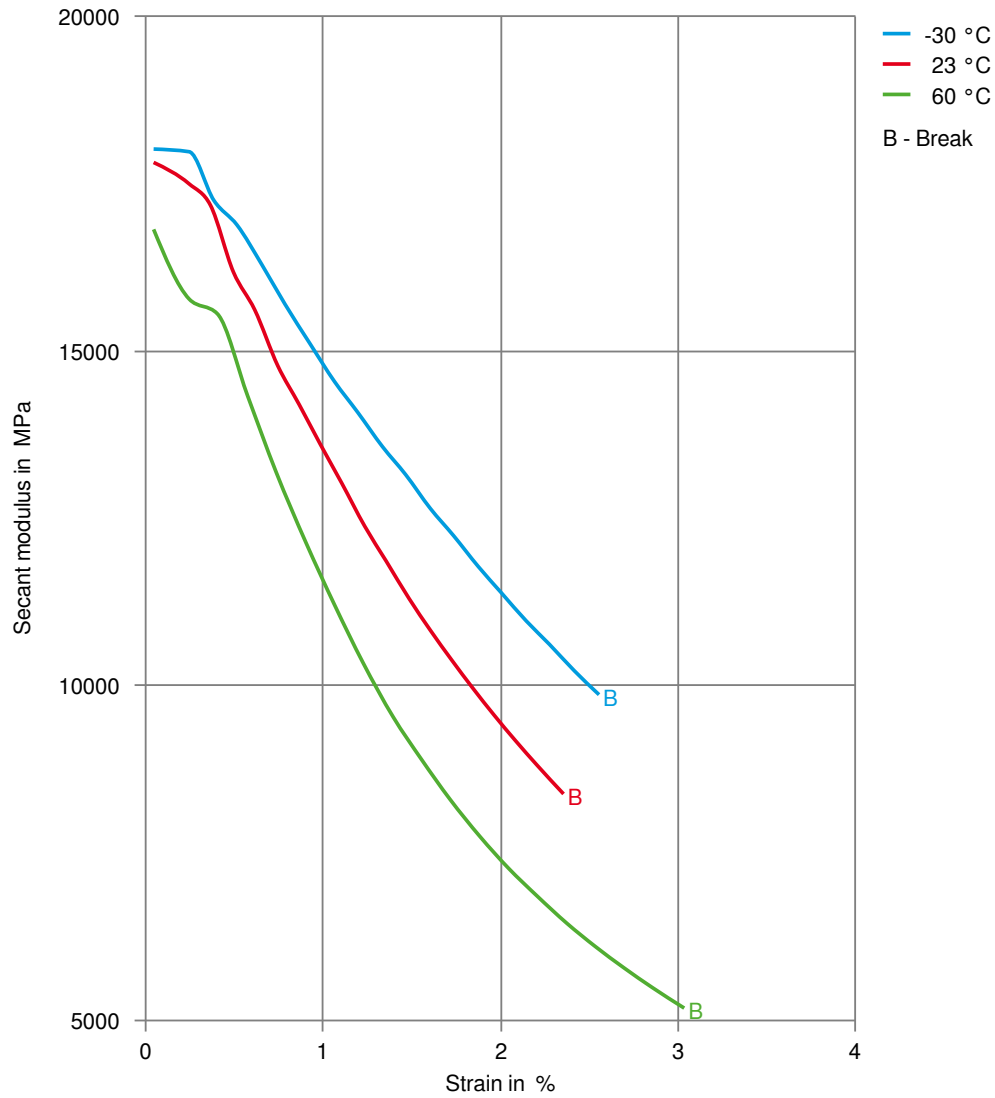
## Stress-strain (cond.)



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## Secant modulus-strain (dry)



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## Secant modulus-strain (cond.)

