

# CELANYL® XS3 GF50 NC 1102/J

Semi-aromatic polyamide blend, 50% glass fibre, heat stabilized. UL listed HB@0.45mm.

*Compound designed for parts with high mechanical requirements, typically used to replace metal due to the high stiffness and strength, stable after conditioning. It shows better creep behavior and dimensional stability vs. an equivalent PA66 grade, with lower warpage and excellent surface finish.*

## Product information

Part Marking Code >PA\*-GF50< ISO 11469

## Rheological properties

Moulding shrinkage range, parallel 0.1 - 0.3 % ISO 294-4, 2577  
Moulding shrinkage range, normal 0.3 - 0.5 % ISO 294-4, 2577

## Typical mechanical properties

|                                       | dry/cond.     |                   |              |
|---------------------------------------|---------------|-------------------|--------------|
| Tensile Modulus                       | 16500 / 15500 | MPa               | ISO 527-1/-2 |
| Stress at break, 5mm/min              | 245 / 210     | MPa               | ISO 527-1/-2 |
| Strain at break, 5mm/min              | 2.8 / 3       | %                 | ISO 527-1/-2 |
| Flexural Modulus                      | 16000 / 14000 | MPa               | ISO 178      |
| Charpy impact strength, 23°C          | 100 / 95      | kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy impact strength, -30°C         | 100 / -       | kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy notched impact strength, 23°C  | 15.5 / 15     | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy notched impact strength, -30°C | 15 / -        | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Izod notched impact strength, 23°C    | 14.5 / 14.5   | kJ/m <sup>2</sup> | ISO 180/1A   |
| Poisson's ratio                       | 0.402         |                   |              |

## Thermal properties

Melting temperature, 10°C/min 260 °C ISO 11357-1/-3  
Temp. of deflection under load, 1.8 MPa 235 °C ISO 75-1/-2

## Flammability

Burning Behav. at 1.5mm nom. thickn. HB class UL 94  
Burning Behav. at thickness h HB class UL 94  
Thickness tested 0.45 mm UL 94  
UL recognition yes UL 94

## Other properties

Humidity absorption, 2mm 1 % Sim. to ISO 62  
Water absorption, 2mm 3.5 % Sim. to ISO 62  
Density 1580 kg/m<sup>3</sup> ISO 1183

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## Additional information

### Injection molding

The following conditions apply to a standard injection moulding process of XS compounds. Machine temperatures: barrel 265-290°C, nozzle and hot runners up to 300°C (up to 290°C products with flame retardants). Mould temperatures: 80-100°C, (80-120°C highly reinforced grades). Back pressure: typically 5-10 bar (hydraulic pressure). Temperatures exceeding 300°C and long residence time could lead to degradation and brittleness of the material. In case of gas generation in the melt, please verify moisture content and processing temperatures. Usage of regrind is possible depending on the moulded part characteristics. For further details, please refer to the document 'Instructions for injection moulding' or contact our technical support team.

## Processing Texts

### Injection molding

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### Injection molding Preprocessing

XS compounds, stored in a moisture-proof packaging, can be processed without drying; however, it is always recommended drying the product that comes from a large package (e.g. Octabin). The suggested moisture content for the process of injection molding is less than 0.15% for grades with low percentage of reinforcement; for grades with high percentage of fiber and to achieve the best surface quality, the moisture content should be lower than 0.10% . Flame retardant grades must be processed with a maximum moisture content of 0,10%.The drying time depends on the initial moisture content and the drying conditions. Typically 4-8 hours at 80-90°C using dehumidified air (dew point of -20°C) are suitable conditions for a starting moisture content of 0.20%-0.40%.

### Injection molding Postprocessing

Part moulded with XS compounds reach their final performance with a water content of about 1,0% by weight, depending on the grade. This percentage corresponds to the point of equilibrium between the rates of absorption and desorption of moisture. After moulding, in favourable environmental conditions, a part can quickly absorbs moisture up to 0,3-0,5%, while the equilibrium will be reached during its life. Post-treatments of parts may also include the annealing (80-120°C in oven, up to four hours). This procedure can be useful to relax any internal stresses.

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