

# CELANYL® A3 CF20 BK 9005

PA66, 20% carbon fibres reinforced (electrical conductive).  
 Car industry, Household appliances, Electrical devices.

## Product information

Part Marking Code	>PA66-CF20<	ISO 11469
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## Rheological properties

Viscosity number	145 cm <sup>3</sup> /g	ISO 307, 1157, 1628
Moulding shrinkage range, parallel	0.1 - 0.4 %	ISO 294-4, 2577
Moulding shrinkage range, normal	0.5 - 0.9 %	ISO 294-4, 2577

## Typical mechanical properties

	dry/cond.	
Tensile Modulus	14900 /-	MPa ISO 527-1/-2
Stress at break, 5mm/min	205 /-	MPa ISO 527-1/-2
Strain at break, 5mm/min	2.7 /-	% ISO 527-1/-2
Charpy impact strength, 23°C	N /-	kJ/m <sup>2</sup> ISO 179/1eU
Charpy impact strength, -30°C	38 /-	kJ/m <sup>2</sup> ISO 179/1eU
Charpy notched impact strength, 23°C	8 /-	kJ/m <sup>2</sup> ISO 179/1eA
Charpy notched impact strength, -30°C	5 /-	kJ/m <sup>2</sup> ISO 179/1eA
Ball indentation hardness, H 358/30	215	MPa ISO 2039-1

## Thermal properties

Melting temperature, 10°C/min	260 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	240 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	250 °C	ISO 75-1/-2

## Electrical properties

	dry/cond.	
Volume resistivity	1000 /-	Ohm.m IEC 62631-3-1
Surface resistivity	10000 /-	Ohm IEC 62631-3-2
Electric strength	2.4 /-	kV/mm IEC 60243-1

## Other properties

Humidity absorption, 2mm	1.8 %	Sim. to ISO 62
Water absorption, 2mm	6.5 %	Sim. to ISO 62
Density	1200 kg/m <sup>3</sup>	ISO 1183

## Additional information

Injection molding	The following conditions apply to a standard injection moulding process. Machine temperatures: barrel 265-290C (PA66), 235-270C (PA6), nozzle and hot runners up to 300C (up to 290C products with flame retardants). Mould temperatures: 60-80C, (80-100C highly reinforced grades). Back pressure: typically 5-10 bar (hydraulic pressure). Temperatures exceeding 300C and long residence time could lead to additives degradation and brittleness of the material. In case of gas
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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

PA materials, stocked 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 moisture content suggested for the injection moulding process should be lower than 0.15%, according to the grade and to the moulded part characteristics. The materials containing flame retardants should have moisture content below 0.10%. Red phosphorous containing grades must always be dried below 0.08%. The drying time depends on the moisture content and the drying conditions. Typically 4-8 hours at 80-90C using dehumidified air (dew point of -20C) are suitable conditions for a starting moisture content of 0.20%-0.40%.

### Injection molding Postprocessing

PA materials reach their final performance with a water content of about 1.5 to 3.5% by weight, depending on the type. 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 absorb moisture up to 0.5-1.0%, while the equilibrium will be reached during its life. A conditioning treatment can accelerate further the initial water absorption of the moulded parts. Conditioning is usually carried out in hot and humid environment (for example 50C, 100% RH), inside climatic chambers. Slight dimensional variations (increase in volume due to the water absorbed) must be taken into account, especially in unfilled grades. Post-treatments of parts may also include the annealing (60-80C in oven, up to four hours). This procedure can be useful to relax any internal stresses.

