

TECHNYL® A 216 Black 21 N is an unreinforced polyamide 66, standard viscosity, for injection moulding. This grade offers all of the primary properties of unreinforced polyamide 66 : thermal and mechanical properties, chemical resistance, impact and abrasion resistance.

GENERAL

Material Status	• Commercial: Active
Availability	• Asia Pacific
Key Benefits	• Good Flow • Good Mold Release
Applications	• Consumer and Industrial applications • Electrical/Electronic Applications • General purpose • Seat components • Switch, Plug, Control & Sockets
Certification/Compliance	• UL QMFZ2
RoHS Compliance	• RoHS Compliant
Colors Available	• Black • Natural Color • Grey • Red
Forms	• Pellets
Processing Method	• Injection Molding
Resin ID (ISO 1043)	• PA66

PROPERTIES

Typical values of properties are for Black grades

Physical	Dry	Conditioned	Unit	Test Method
Molding Shrinkage				ISO 294-4
Across Flow	1.6		%	
Flow	1.6		%	
Water Absorption				ISO 62
24 hr, 23°C	1.3		%	
Equilibrium, 23°C, 50% RH	2.9		%	
Density	1.14		g/cm ³	ISO 1183/A
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	3300	1500	MPa	ISO 527-2/1A
Tensile Strength				
Yield, 23°C	85		MPa	ASTM D638
Yield, 23°C	85	25	MPa	ISO 527-2/1A
Break, 23°C	80	45	MPa	ISO 527-2/1A

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Strain				
Yield, 23°C	4.5	50	%	ISO 527-2
Break, 23°C	30		%	ASTM D638
Break, 23°C	> 30	> 100	%	ISO 527-2
Flexural Modulus				
23°C	3000		MPa	ASTM D790
23°C	2800	1300	MPa	ISO 178
Flexural Strength				
23°C	125		MPa	ASTM D790
23°C	120	70.0	MPa	ISO 178
Charpy Notched Impact Strength (23°C)	4.5	10	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	110		kJ/m²	ISO 179/1eU
Notched Izod Impact				
23°C	55		J/m	ASTM D256
23°C	5.0	9.0	kJ/m²	ISO 180
Unnotched Izod Impact Strength (23°C)	No Break	No Break		ISO 180/1U
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	220		°C	ASTM D648
0.45 MPa, Unannealed	200		°C	ISO 75-2/Bf
1.8 MPa, Unannealed	75		°C	ASTM D648 ISO 75-2/Af
Melting Temperature	263		°C	ISO 11357-3
Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	1.0E+15	1.0E+14	ohms	IEC 60093
Volume Resistivity	1.0E+15	1.0E+14	ohms·cm	IEC 60093
Electric Strength				IEC 60243-1
23°C, 0.800 mm	35		kV/mm	
23°C, 2.00 mm	22		kV/mm	
Relative Permittivity (23°C, 2.00 mm, 1 MHz)	3.50			IEC 60250
Dissipation Factor (1 MHz)	0.033			IEC 60250
Comparative Tracking Index				IEC 60112
Solution A	600	600	V	
Solution B	525		V	

Flammability	Dry	Conditioned Unit	Test Method
Flame Rating			UL 94
0.8 mm	V-2		
1.6 mm	V-2		
3.2 mm	V-2		
Glow Wire Flammability Index (0.8 mm)	650	°C	IEC 60695-2-12
Glow Wire Ignition Temperature (1.6 mm)	650	°C	IEC 60695-2-13

PROCESSING

Injection	Dry Unit
Drying Temperature	80 °C
Suggested Max Moisture	0.20 %
Rear Temperature	265 to 275 °C
Middle Temperature	270 to 280 °C
Front Temperature	280 to 285 °C
Mold Temperature	60 to 80 °C

Injection Notes

The material is supplied in airtight bags, ready for use. In case that the virgin material has absorbed moisture, it must be dried with a dehumidified air drying equipment, dew point mini -20°C. Recommended time 2-4h

Injection Advice:

- For unfilled polyamides, Solvay recommends the use of high alloy steel with a low chromium content. For example: X38CrMoV5-1 (EN Norm) - 1.2367 /1.2343 (DIN Norm). In the case of high requirements on surface quality a mould temperature of up to 120°C can be considered.
- The processing parameters like processing temperatures are a recommendation and can be adjusted in function of injection machine size, part geometry / design

DISCLAIMER

The information contained in this document is given in good faith based on our current knowledge. It is only an indication and it is in no way binding. This information must on no account be used as a substitutive for necessary prior tests which alone can ensure that a product is suitable for a given use. ANY WARRANTY OF PRODUCT PERFORMANCE, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED. Users are responsible for ensuring compliance with local legislation and for obtaining the necessary certifications and authorizations. Users are requested to check that they are in possession of the latest version of this document, and Solvay is at their disposal to supply any additional information.

SAFETY INFORMATION

Detailed information regarding safety are available on the safety data sheet (SDS). SDS is sent with the first material order or available by contacting our customer services

REGULATIONS COMPLIANCE

This product is not intended to be used for the following regulated market: food contact, drinking water, toys, cosmetics or medical devices.

This grade complies with ROHS Directive 2011/65/EU and 2015/863 as amended.

CUSTOMER SERVICES

Our customer services are not only concerned with manufacturing and supply of Engineering Plastics products. We are available to assist our customers in finding technical solutions that meet their requirements. Specific support is in particular offered on:

- Material selection
- Material testing
- Parts design advice, training for design engineers
- Part testing
- Design simulation
- Processing through different technologies
- Assembly and post-processing technology expertise
- Parts optimization through Computer Aided Design

MULTIPOINT DATA

Isothermal Stress vs. Strain (ISO 11403-1)

