TECHNYL®

TECHNYL® A 221 NATURAL

TECHNICAL DATA SHEET

Revised: April, 2019

TECHNYL® A 221 Natural is an unfilled polyamide 66, for injection moulding, with a special crystallizing agent, for fast cycles. This grade offers a good combination between primary properties of the unreinforced polyamide 66 and processing properties leading to increased productivity. These performances are associated with excellent dimensional stability and good rigidity of moulded parts.

GENERAL

Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America
Key Benefits	• Good Dimensional Stability • Fast Molding Cycle	• Good Flow • Good Mold Release
Applications	• Aerosole valves • Connectors • Consumer and Industrial applications • Conversion Devices	• Kitchen appliances • Lighters • Pulleys • Valves
Certification/Compliance	• EC 1907/2006 (REACH)	• UL QMFZ2
RoHS Compliance	• RoHS Compliant	
Automotive Specifications	• FORD WSK-M4D647-A • FORD WSK-M4D647-A Color: Black • FORD WSK-M4D647-A Color: Natural	• GM GMP.PA66.014 Color: Black • GM GMP.PA66.014 Color: Natural
Colors Available	• Natural Color	
Forms	• Pellets	
Processing Method	• Injection Molding	
Resin ID (ISO 1043)	• PA66	

PROPERTIES

Typical values of properties are for Natural grades

Physical	Dry	Conditioned	Unit	Test Method
Molding Shrinkage				ISO 294-4
Across Flow	1.4		%	
Flow	1.2		%	
Water Absorption				ISO 62
24 hr, 23°C	1.1		%	
Equilibrium, 23°C, 50% RH	2.9		%	
Density	1.14		g/cm³	ISO 1183/A

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	3500	1700	MPa	ISO 527-2/1A

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Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Strength				
Yield, 23°C	98		MPa	ASTM D638
Yield, 23°C	95	65	MPa	ISO 527-2/1A
Break, 23°C	90	45	MPa	ISO 527-2/1A
Tensile Elongation				
Break, 23°C	15		%	ASTM D638
Break, 23°C	20	110	%	ISO 527-2
Flexural Modulus				
23°C	3200		MPa	ASTM D790
23°C	3150	1400	MPa	ISO 178
Flexural Strength				
23°C	125		MPa	ASTM D790
23°C	125	55.0	MPa	ISO 178
Charpy Notched Impact Strength (23°C)	4.0	12	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	No Break	No Break		ISO 179/1eU
Notched Izod Impact (23°C)	80		J/m	ASTM D256

Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				
0.45 MPa, Unannealed	200		°C	ISO 75-2/Bf
1.8 MPa, Unannealed	80		°C	ASTM D648
1.8 MPa, Unannealed	90		°C	ISO 75-2/Af
Melting Temperature	263		°C	ISO 11357-3

Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	1.0E+15	1.0E+13	ohms	IEC 60093
Volume Resistivity	1.0E+15	1.0E+16	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	500		V	

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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 (1.6 mm)	700		°C	IEC 60695-2-12

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

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.

Grades produced or imported in Europe comply with REACH directive 1907/2006/EC as amended.

CUSTOMER SERVICES

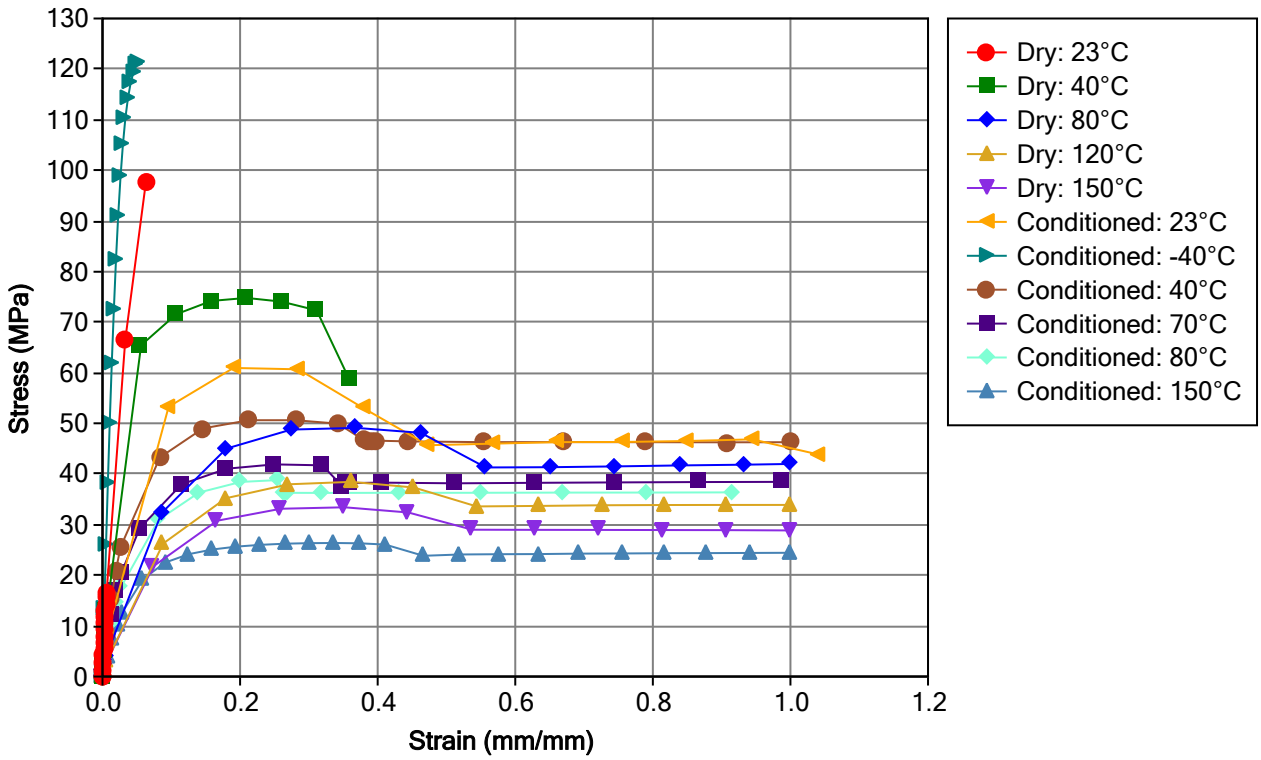
Our customer services are not only concerned with manufacturing and supply of Engineering Plastics products. We are available to assist our customers in finding technical solutions that meet their requirements. Specific support is in particular offered on:

- 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

You can find more information on Solvay Product range on our internet product finder at the following address: http://www.technyl.com

MULTIPOINT DATA

Isothermal Stress vs. Strain (ISO 11403-1)



Notes

Typical properties: these are not to be construed as specifications.

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