

TECHNYL®

TECHNYL® A 221 NATURAL-1

TECHNICAL DATA SHEET

Revised: September, 2018

TECHNYL® A 221 Natural-1 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 | • Asia Pacific |
| Key Benefits | • Good Dimensional Stability • Fast Molding Cycle • Good Flow • Good Mold Release • Good Surface Finish |
| Applications | • Aerosole valves • Connectors • Lighters |
| Certification/Compliance | • UL QMFZ2 |
| RoHS Compliance | • RoHS Compliant |
| 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 |
|---------------------------|------|-------------|-------------------|--------------|
| Water Absorption | | | | ISO 62 |
| 24 hr, 23°C | 1.1 | | % | |
| 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) | 3200 | 1700 | MPa | ISO 527-2/1A |
| 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 | > 100 | % | ISO 527-2 |



| Mechanical | Dry | Conditioned | Unit | Test Method |
|---|------------|--------------------|-------------------|--------------------|
| Flexural Modulus | | | | |
| 23°C | 3200 | | MPa | ASTM D790 |
| 23°C | 3150 | 1400 | MPa | ISO 178 |
| Flexural Strength | | | | |
| 23°C | 120 | 120 | MPa | ASTM D790 |
| 23°C | 125 | 55.0 | MPa | ISO 178 |
| Charpy Notched Impact Strength (23°C) | 4.0 | 12 | kJ/m ² | 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 |
| Unnotched Izod Impact Strength (23°C) | 60 | | kJ/m ² | ISO 180/1U |
| 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 | 262 | | °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 | |
| Flammability | Dry | Conditioned | Unit | Test Method |
| Flame Rating | | | | UL 94 |
| 0.8 mm | V-2 | | | |
| 1.6 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

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

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

Notes

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

