

TECHNYL® A 50H1 Natural is an unreinforced polyamide 66 based on a non-phosphorous and non-halogenated flame retardant system, heat stabilized, for injection moulding. This flame retardant grade, offers excellent filling qualities combined with good stiffness.

GENERAL

Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific	• Europe
Additive	• Flame Retardant	• Heat Stabilizer
Key Benefits	• F1 UL Classification • Good Mold Release	• UL 94 V0 at 0.4 mm
Applications	• Connectors • Electrical/Electronic Applications	• Junction box • Terminal blocks
Certification/Compliance	• EC 1907/2006 (REACH) • EN 45545	• UL QMFZ2
RoHS Compliance	• RoHS Compliant	
Colors Available	• Black	• Natural Color
Forms	• Pellets	
Processing Method	• Injection Molding	
Resin ID (ISO 1043)	• PA66 FR(30)	

PROPERTIES

Typical values of properties are for Natural grades

Physical	Dry	Conditioned	Unit	Test Method
Molding Shrinkage				ISO 294-4
Across Flow	1.0		%	
Flow	1.1		%	
Water Absorption				ISO 62
24 hr, 23°C	0.88		%	
Equilibrium, 23°C, 50% RH	2.7		%	
Outdoor Suitability	f1			UL 746C
Density	1.16		g/cm³	ISO 1183/A
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	3800	1700	MPa	ISO 527-2/1A
Tensile Stress				ISO 527-2/1A
Yield, 23°C	85	55	MPa	
Break, 23°C	80	45	MPa	
Tensile Strain (Break, 23°C)	12	> 100	%	ISO 527-2

Mechanical	Dry	Conditioned	Unit	Test Method
Flexural Modulus				
23°C	3800	1750 MPa		ASTM D790
23°C	3700	1700 MPa		ISO 178
Flexural Strength				
23°C	125	55.0 MPa		ASTM D790
23°C	135	60.0 MPa		ISO 178
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	3.0		kJ/m ²	
23°C	3.2		7.0 kJ/m ²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	90		kJ/m ²	
23°C	80	No Break	kJ/m ²	
Notched Izod Impact				
23°C	50		J/m	ASTM D256
23°C	3.0		kJ/m ²	ISO 180
Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				
0.45 MPa, Unannealed	237		°C	ISO 75-2/Bf
1.8 MPa, Unannealed	85		°C	ISO 75-2/Af
Melting Temperature	263		°C	ISO 11357-3
Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	3.0E+15	1.0E+14	ohms	IEC 60093
Volume Resistivity	3.0E+15	1.0E+12	ohms·cm	IEC 60093
Electric Strength				IEC 60243-1
0.800 mm	33		kV/mm	
2.00 mm	21		kV/mm	
Relative Permittivity	3.50			IEC 60250
Dissipation Factor	0.017			IEC 60250
Comparative Tracking Index (Solution A)	600		V	IEC 60112
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.40 mm	V-0			
0.8 mm	V-0			
1.6 mm	V-0			
3.2 mm	V-0			

Flammability	Dry	Conditioned Unit	Test Method
Glow Wire Flammability Index			IEC
0.8 mm	960	°C	60695-2-12
1.6 mm	960	°C	
3.2 mm	960	°C	
Glow Wire Ignition Temperature			IEC
0.40 mm	960	°C	60695-2-13
0.8 mm	960	°C	
1.6 mm	775	°C	
Oxygen Index	33	%	ISO 4589-2
Additional Information			
		Dry Unit	Test Method
European Railways Certifications			EN 45545-2
R22		HL3	
R23		HL3	

PROCESSING

Injection	Dry Unit
Drying Temperature	80 °C
Suggested Max Moisture	0.20 %
Rear Temperature	260 to 270 °C
Middle Temperature	265 to 275 °C
Front Temperature	265 to 275 °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:

- All reinforced, flame retardant compounds generate some level of abrasion/corrosion to the steel processing equipment. These issues may be magnified by using incorrect processing conditions (temperatures, residence time, moisture level ...) during the moulding process. Therefore, Solvay recommends you adhere to the processing conditions detailed in this technical data sheet. For equipment that comes into contact with molten flame retardant compounds, Solvay advises you to use a steel with high chromium and high carbon content (having a minimum concentration of 16% Chromium) to prevent corrosion and abrasion. For the correct reference of steel associated to flame retardant compounds' processing, please refer to your equipment manufacturers. 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, MERCHANDABILITY 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.

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

MULTIPOINT DATA

Isothermal Stress vs. Strain (ISO 11403-1)

