

# TECHNYL®

## TECHNYL® B 50H1 NATURAL

TECHNICAL DATA SHEET

Revised: August, 2018

TECHNYL® B 50H1 Natural is an unreinforced copolyamide 6.6/6 based on a non-phosphorous and non-halogenated flame retardant system, heat stabilized, for injection moulding. This flame retardant grade, UL94 V0 at 0.4mm, offers excellent filling qualities together with good stiffness.

### GENERAL

Material Status	• Commercial: Active			
Availability	• Latin America			
Additive	• Flame Retardant	• Heat Stabilizer		
Key Benefits	• F1 UL Classification	• Good Mold Release	• UL 94 V0 at 0.4 mm	
Applications	• Connectors	• Junction box	• Electrical/Electronic Applications	• Terminal blocks
Certification/Compliance	• EN 45545	• UL QMFZ2		
RoHS Compliance	• RoHS Compliant			
Colors Available	• Black	• Natural Color		
Forms	• Pellets			
Processing Method	• Injection Molding			
Resin ID (ISO 1043)	• PA66/6 FR(30)			

### 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	3.1		%	
Outdoor Suitability	f1			UL 746C
Density	1.16		g/cm <sup>3</sup>	ISO 1183/A

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	3750	2200	MPa	ISO 527-2/1A
Tensile Strength				
Yield, 23°C	85		MPa	ASTM D638
Yield, 23°C	80	40	MPa	ISO 527-2/1A
Break, 23°C	70	40	MPa	ISO 527-2/1A
Tensile Strain				
Yield, 23°C	4.0	5.0	%	ISO 527-2
Break, 23°C	15		%	ASTM D638
Break, 23°C	12	100	%	ISO 527-2



Mechanical	Dry	Conditioned	Unit	Test Method
Flexural Modulus				
23°C	3800		MPa	ASTM D790
23°C	3700	1100	MPa	ISO 178
Flexural Strength				
23°C	125		MPa	ASTM D790
23°C	130	40.0	MPa	ISO 178
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	3.0		kJ/m <sup>2</sup>	
23°C	3.5	5.0	kJ/m <sup>2</sup>	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	80		kJ/m <sup>2</sup>	
23°C	70	No Break	kJ/m <sup>2</sup>	
Notched Izod Impact				
23°C	50		J/m	ASTM D256
23°C	5.0	6.5	kJ/m <sup>2</sup>	ISO 180
<b>Thermal</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Deflection Temperature Under Load				ASTM D648
1.8 MPa, Unannealed	85		°C	ISO 75-2/Af
Melting Temperature	242		°C	ISO 11357-3
<b>Electrical</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Surface Resistivity	1.0E+15	1.0E+13	ohms	IEC 60093
Volume Resistivity	1.0E+15	1.0E+15	ohms·cm	IEC 60093
Electric Strength (0.800 mm)	33		kV/mm	IEC 60243-1
Relative Permittivity	3.60	4.00		IEC 60250
Dissipation Factor	0.020	0.060		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		
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 (1.6 mm)	650	°C	IEC 60695-2-13
Oxygen Index	33	%	ISO 4589-2
<b>Additional Information</b>		<b>Dry Unit</b>	<b>Test Method</b>
European Railways Certifications			EN 45545-2
R22		HL2	
R23		HL3	

## PROCESSING

Injection	Dry Unit
Drying Temperature	80 °C
Suggested Max Moisture	0.20 %
Rear Temperature	245 to 250 °C
Middle Temperature	250 to 255 °C
Front Temperature	250 to 260 °C
Mold Temperature	60 to 80 °C

### Injection Notes

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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.
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### DISCLAIMER

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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

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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

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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

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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:

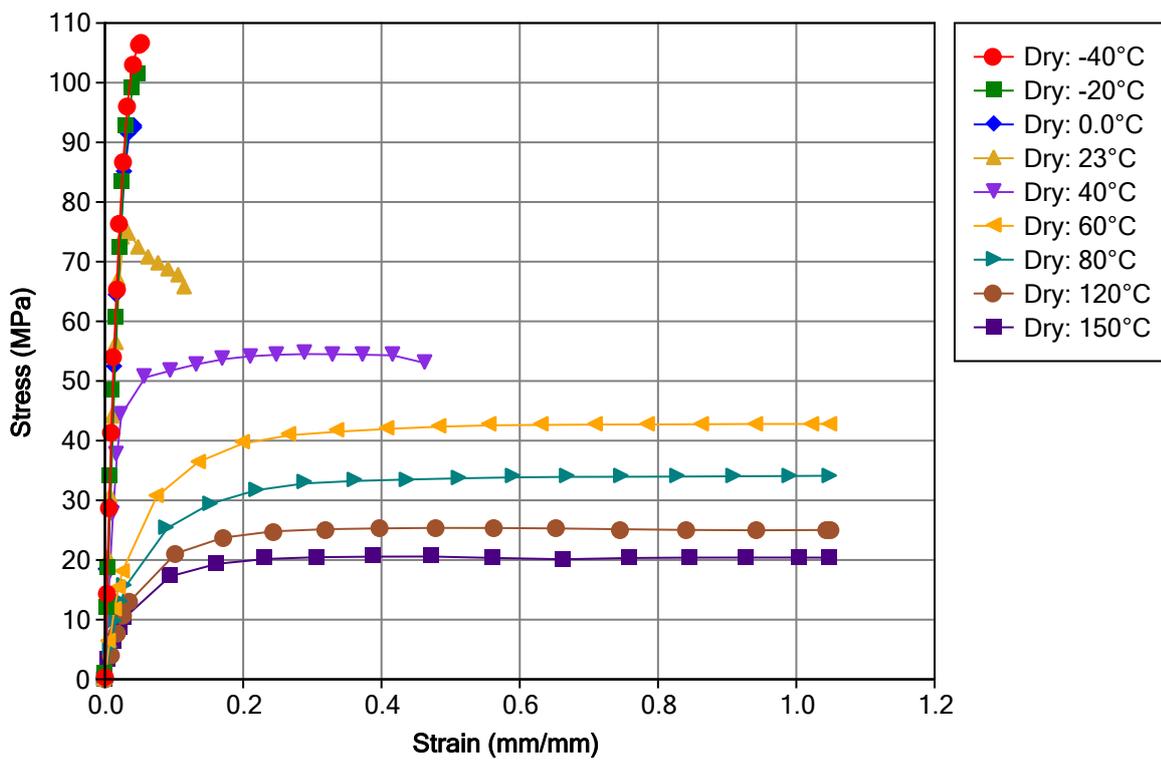
- Material selection
- Material testing
- Parts design advice, training for design engineers
- Part testing
- Design simulation
- Processing through different technologies
- Assembly and post-processing technology expertise
- Parts optimization through Computer Aided Design

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.

