Technical Data Sheet

TECHNOMELT® PA 646 BLACK

August 2023

PRODUCT DESCRIPTION

TECHNOMELT® PA 646 BLACK provides the following product characteristics:

Technology	Polyamide
Chemical type	Hot Melt Adhesive
Cure	Physical Setting
Appearance	Black
Components	One-component
Viscosity	Low
Application	Molding
Molding temperature	200 to 240°C (390 to 460)°F
Operating temperature range	-40 to 130°C (-40 to 260°F) Depends on application, without mechanical stress
Specific benefits	• Easy moldability • Good adhesion to a variety of substrates • Excellent moisture resistance • Excellent environmental resistance

TECHNOMELT® PA 646 BLACK is a one-component Polyamide Hot Melt Adhesive designed to meet low pressure molding process requirements. This product can be processed at low molding pressure due to its low viscosity, allowing encapsulation of fragile components without damage.

Once applied TECHNOMELT® PA 646 BLACK solidifies to form a barrier between electronics and the environment. It is a resilient encapsulant with good heat stability and moisture resistance. Typical applications include potting electronics modules and encapsulation of sensors. It is a versatile adhesive for many substrates such as FR4, (pre-heated) metals and many plastics including ABS, PC.

TECHNOMELT® PA 646 BLACK has been tested to UL 94 V0. Contact Henkel for details.

TYPICAL PROPERTIES

Specific gravity @ 20°C, g/cm^3	
ISO 1183	0.98
Softening point, °C	
ASTM E28 (in glycerin)	170 to 180
Melt Viscosity - RVT, mPa·s (cP)	
ASTM D 3236 (spindle 27)	
@210ºC	6,500
@220ºC	4,500
@225ºC	3,000 to 5,500
@230ºC	3,000

TYPICAL PERFORMANCE

Physical		
Shore Hardness, Durometer A		92
DIN EN ISO 868/15s		
Elongation, %		650
ISO 527, Specimen no.5		
Cross-head-speed: 50mm/min		
Low temperature flexibility, °C		-35
ASTM D3111		
Temperature creep resistance, °C		155
Henkel Method MH 11		
Tg glass transition temperature, °C		-30
DSC Second run		
Strength		
Tensile at break	N/mm^2	9.0
ISO 527, Specimen no.5	(psi)	(1305)
Yield strength	N/mm^2	5.0
ISO 527, Specimen no.5	(psi)	(725)
Cross-head-speed: 50mm/min		

Electrical properties	
Dielectric Constant/Dissipation Factor	
Open coaxial probe	
1 GHz	2.73/0.021
5 GHz	2.66/0.020
10 GHz	2.66/0.019
20 GHz	2.64/0.013
30 GHz	2.63/0.011
40 GHz	2.63/0.010
50 GHz	2.62/0.007
Dielectric strength, kV/mm	22
IEC 60243	
Volume resistivity, ohm-cm	1.7 x 10^{12}
DIN IEC 60093	

GENERAL INFORMATION
This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Safety Data Sheet (SDS).

Directions for use

1. Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
2. The surfaces of the substrate must be dry and free from oil, grease, and dust.
3. Material has been formulated to provide the best possible moldability and as wide a molding latitude as possible.
4. Much of the final molding parameters will be determined by the mold design.
5. Molding temperature will vary from situation to situation, range shown on this data sheet is a starting range for process development.
6. When potting to a substrate with high thermal conductivity the use of a specific application temperature is required for good wetting.
7. Do not heat the product above the specified application temperature range.
8. When the product is not in use do not apply heat, this will degrade the quality of the product and in extreme cases cause carbonization or charring.
9. Carbonized material must be removed mechanically.
10. Removal of the thermoplastic material from the hot apparatus can be achieved with solvent free cleaning system, such as Technomelt PA 62 (see separate technical information). Check for availability in your region.

Storage

Store product in an unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: Up to 28°C. Storage above 35°C can adversely affect the ability to handle and dispense the material.

Material will absorb moisture from the air. Material from opened containers should be transferred immediately into airtight containers. Material should be stored in sealed containers in a cool location to maximize shelf life.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel cannot assume responsibility for product which has beencontaminated or stored under conditions other than thosepreviously indicated. If additional information is required,please contact your local Henkel representative.

Product specification
The technical data contained herein are intended as reference only and are not considered specifications for the product. Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

Approval and Certificate
Please contact Henkel representative for related approval or certificate of this product.

Data Ranges
The data contained herein may be reported as a typical value. Values are based on actual test data and are verified on a periodic basis.

Temperature/Humidity Ranges: 23°C / 50% RH = 23±2°C / 50±5% RH

Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

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