

**TECHNO**MELT®

# LOW PRESSURE MOLDING SOLUTIONS FOR LED LIGHTING

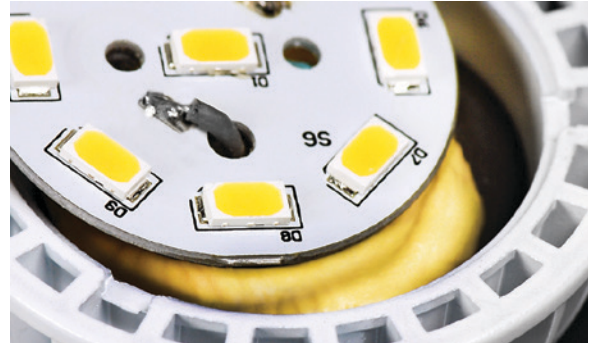


Excellence is our Passion

# THE BENEFITS OF LOW PRESSURE MOLDING IN LED LIGHTING

Effectiveness and simplicity define the TECHNOMELT solution for LED applications, which is why lighting specialists around the world depend on these novel materials.

With a streamlined and fast three-step technique, TECHNOMELT materials offer quick processing capabilities for high-throughput LED manufacturing.



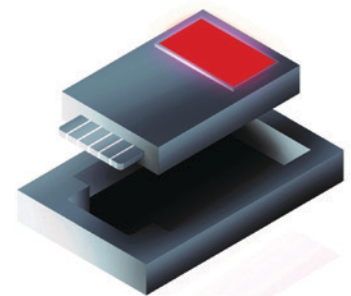
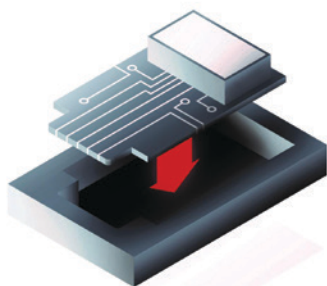
- Fast processing for high-volume LED manufacturing
- Flexible design options to complement the varied LED applications — from single LED applications to multi-strip, large display applications
- Optically transparent materials for maximum light transmittance
- White material options to enhance reflection
- Watertight, UV-stable materials to minimize impact from long-term outdoor exposure
- Compatible material sets for robust design solutions

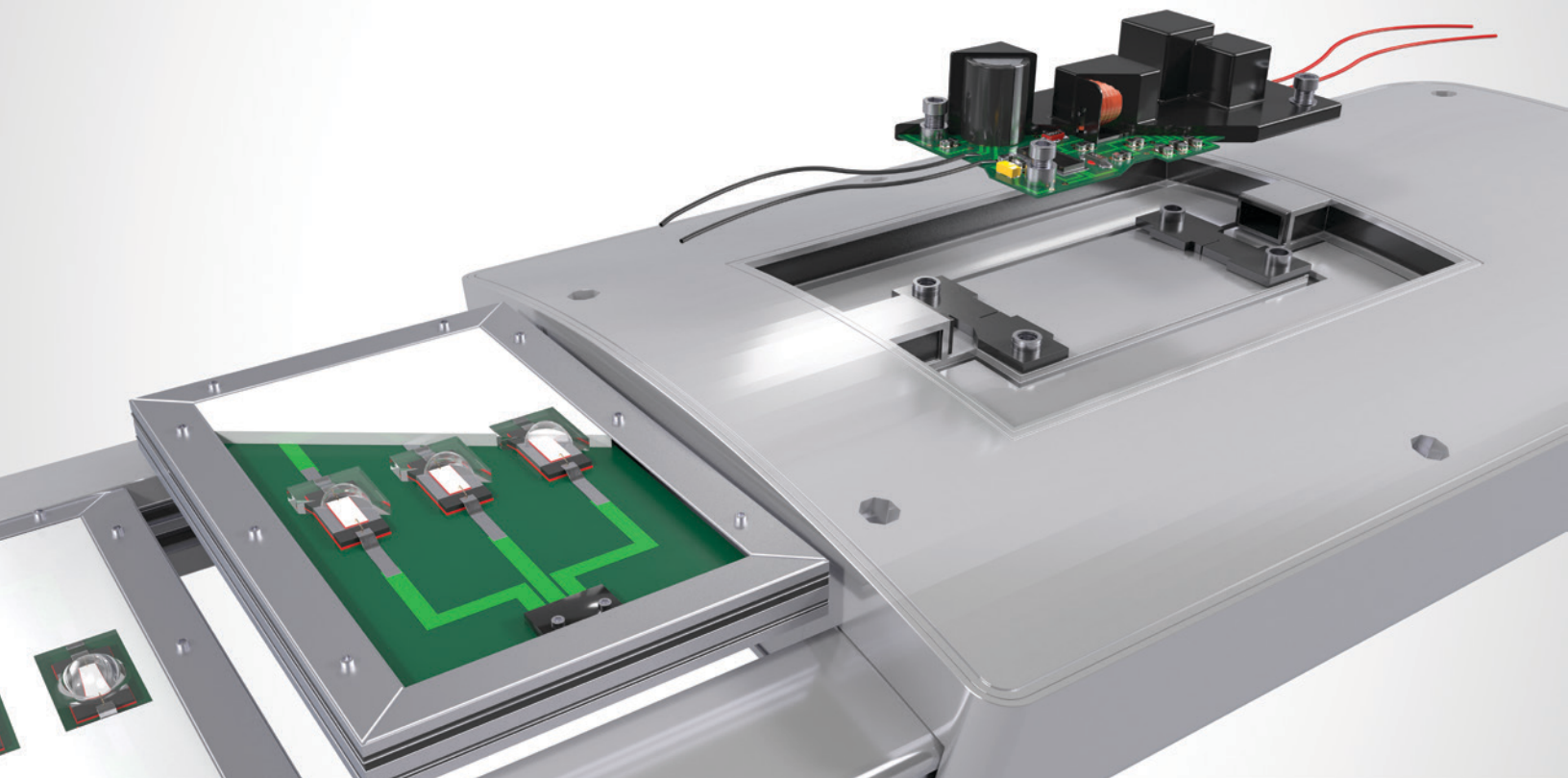
## PROCESS

### TRADITIONAL POTTING PROCESS FLOW



### LOW PRESSURE PROCESS FLOW: THREE SIMPLE STEPS





## LOW PRESSURE MOLDING PRODUCTS FOR LED LIGHTING

PRODUCT	DESCRIPTION	COLOR	PERFORMANCE TEMPERATURE	SHORE HARDNESS	SAFETY RATING
<b>Conductive</b>					
TECHNOMELT TC 50	High-performance, filled thermoplastic polyamide formulated as a protective encapsulant for heat-generating devices requiring thermal management. This material allows encapsulation of fragile components without damage. Thermal conductivity is 0.65 W/mK.	Black	-40°C to 140°C	60D	UL 94 V-0
<b>Specialty Technologies</b>					
TECHNOMELT AS 4226	UV-stabilized thermoplastic material used in applications in which optical transparency is important to the functionality of the device. Allows for long-term exposure to UV light with minimal change to clarity or color.	Transparent	-40°C to 85°C	45D	UL 94 HB
TECHNOMELT PA 668 CLEAR	Thermoplastic polyamide designed for overmolding sensitive electronic devices. The material is clear in color and is UV stabilized to retain a high level of clarity after exposure to UV and heat.	Transparent	-25°C to 105°C	90A	N/A
<b>UV-Resistant</b>					
TECHNOMELT PA 668	Thermoplastic polyamide that exhibits a crisp, bright white color with excellent UV and thermal stability and is ideal for outdoor use. Good adhesion to a range of substrates.	White	-25°C to 105°C	90A	UL 94 V-0
TECHNOMELT PA 6344	High-performance, UV-resistant thermoplastic polyamide that exhibits good adhesion to a variety of substrates including solder mask.	Black	-40°C to 100°C	76A	N/A

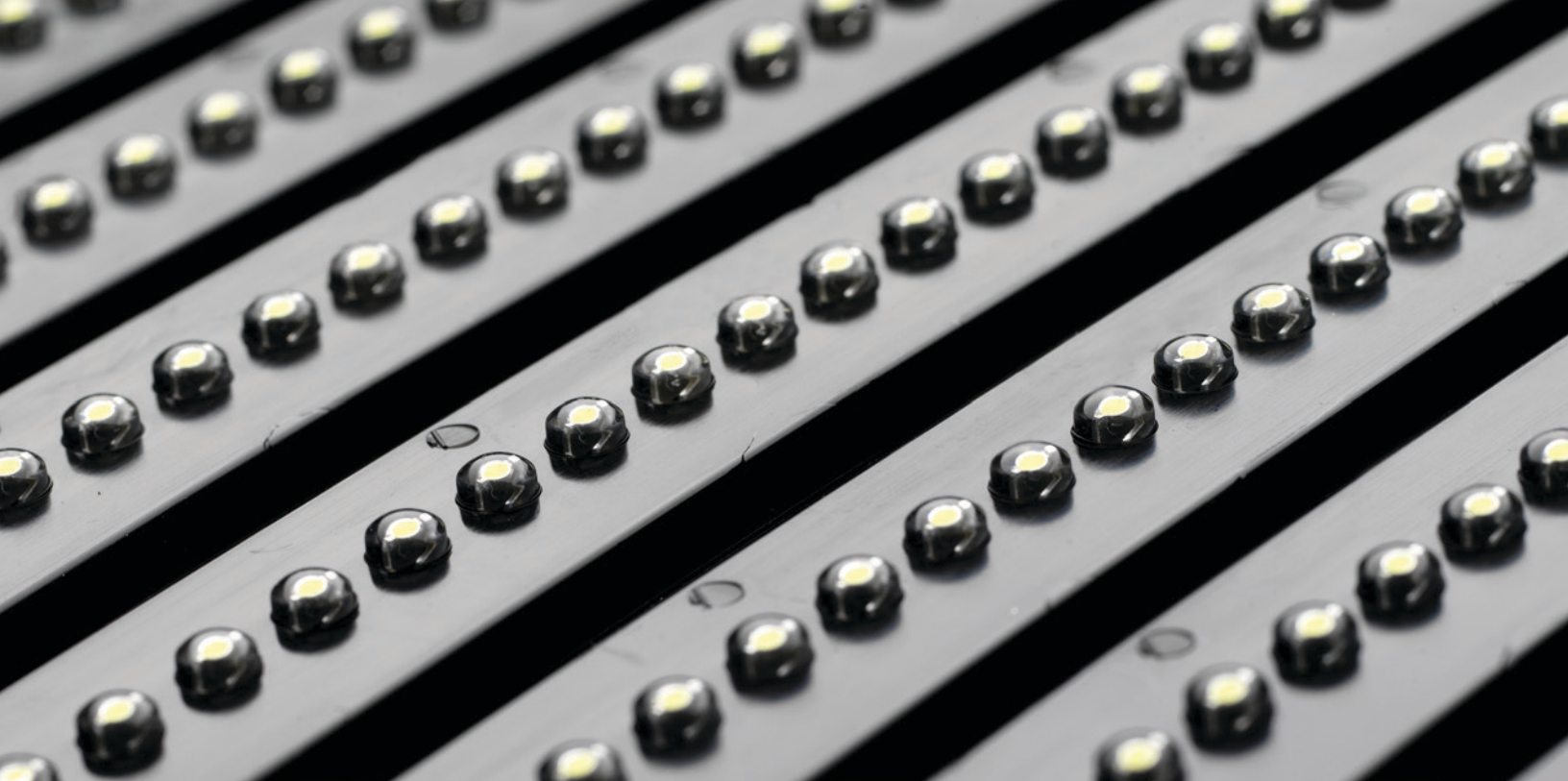


Photo Credit: © 2016 Cavist

## LOW PRESSURE MOLDING PRODUCTS FOR LED LIGHTING

### TECHNOMELT AS 4226

- Ultra-clear, optically transparent
- UV and thermally stabilized
- One-component product / no mixing
- Good adhesion to PCBs and components
- Novel copolymer technology makes it ideal for sensitive electronic components

### TECHNOMELT PA 668

- White color maintained even when exposed to harsh external factors
- UV and thermally stabilized
- Superior molding and color integrity performance
- Ideal for indoor and outdoor LED lighting

### TECHNOMELT PA 668 CLEAR

- Designed for applications where a high level of clarity is required
- UV and thermally stabilized to maintain its appearance after exposure to harsh environments
- Excellent adhesion to PCBs, plastics and flex circuits
- Improved compatibility with molding of sensitive electronics

### TECHNOMELT PA 6344

- UV and thermal resistance
- Adheres well to a variety of substrates including plastic, glass and metals
- Good flexibility and mechanical strength
- Low durometer

### TECHNOMELT TC 50

- Provides increased thermal transfer as power increases
- Dramatically improves cycle times over traditional potting materials
- UV, thermally and color stabilized
- UL rated
- Supports high-throughput manufacturing and improves scalability



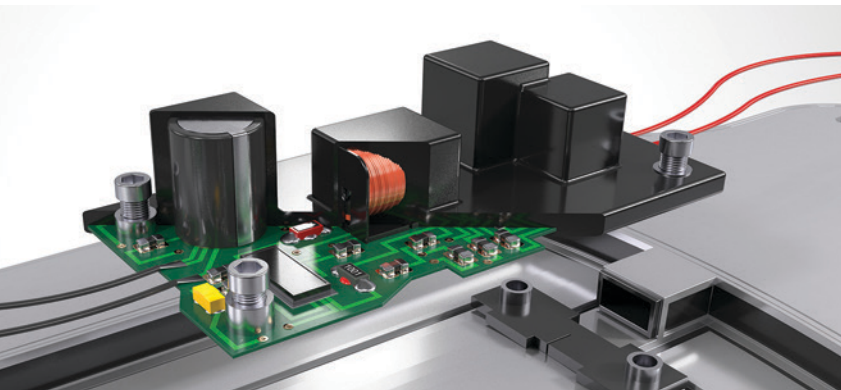
Photo Credit: © 2016 Cavist

# THERMALLY CONDUCTIVE TECHNOMELT

## TECHNOMELT TC 50

TECHNOMELT TC 50, Henkel's thermally conductive TECHNOMELT material innovation, combines the low-pressure, protective benefits of all TECHNOMELT materials with thermally conductive functional capabilities.

As an alternative to conventional potting techniques, TECHNOMELT TC 50 offers improved process and performance benefits along with thermal conductivity  $>0.5 \text{ W/mK}$  for the dissipation of heat through the encapsulating material.

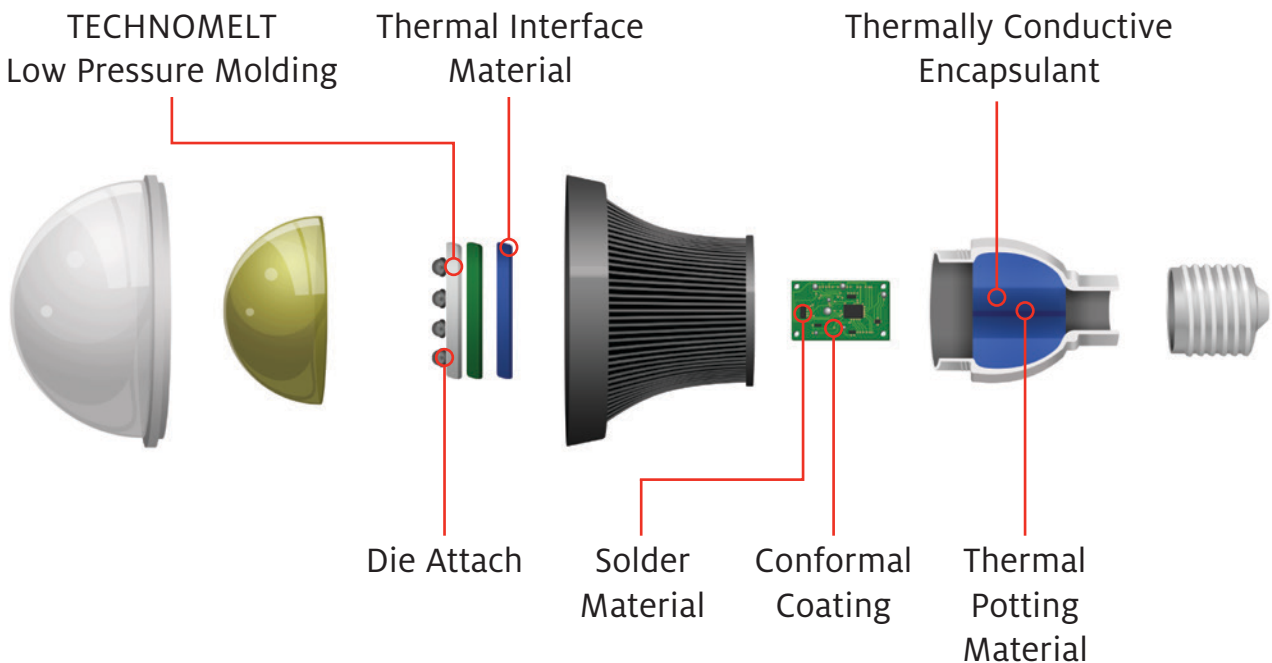


### BENEFITS

- Heat dissipation through TECHNOMELT low pressure molding material
- Substantially decreases component temperature
- Stable filler dispersion that eliminates settling for continued low pressure molding
- Low-abrasive filler

## HENKEL'S TOTAL SOLUTIONS PORTFOLIO

TECHNOMELT's ease of use is matched only by the breadth of the portfolio and the robust performance of each material. With products that deliver a range of technology benefits including watertight protection, UV stability, thermal conductivity, optical transparency and reflectiveness, the TECHNOMELT line of materials provides LED manufacturers with the processability, reliability and cost-effectiveness required for a competitive advantage.



## AMERICAS

### HEADQUARTERS:

#### UNITED STATES

Henkel Electronic Materials, LLC  
14000 Jamboree Road  
Irvine, CA 92606  
USA  
Tel: +1.888.943.6535  
Fax: +1.714.368.2265

Henkel Electronic Materials, LLC  
20021 Susana Road  
Rancho Dominguez, CA 90221  
USA  
Tel: +1.310.764.4600  
Fax: +1.310.605.2274

Henkel Electronic Materials, LLC  
18930 W. 78th Street  
Chanhassen, MN 55317  
USA  
Tel: +1.952.835.2322  
Tel: +1.800.347.4572  
Fax: +1.952.835.0430

#### BRAZIL

Henkel Brazil  
Av. Prof. Vernon Kriebler, 91  
06690-070 Itapevi,  
Sao Paulo, Brazil  
Tel: +55.11.3205.7001  
Fax: +55.11.3205.7100

## ASIA-PACIFIC

### CHINA

No. 332 Meigui South Road  
WaiGaoQiao Free Trade Zone, Pu Dong  
Shanghai 200131, P.R. China  
Tel: +86.21.3898.4800  
Fax: +86.21.5048.4169

Henkel Huawei Electronics CO. LTD  
Songtiao Industrial Park Lianyungang  
Jiangsu Province 222006 China  
Tel: +86.518.8515.5343  
Fax: +86.518.8515.3801

### JAPAN

Henkel Japan Ltd.  
27-7, Shin Isogo-cho  
Isogo-ku Yokohama, 235-0017  
Japan  
Tel: +81.45.758.1851  
Email: jp.ae-csdesk@henkel.com

### KOREA

Henkel Technologies (Korea) Ltd.  
6th Floor  
Dae Ryung Techno Town II  
33-33 Gasan-dong,  
Geumcheon-gu, Seoul 153-771  
Korea  
Tel: +82.2.6675.8000  
Fax: +82.2.6675.8191

### SINGAPORE

Henkel Singapore Pte Ltd.  
401, Commonwealth Drive  
#03-01/02 Haw Par Technocentre,  
Singapore 149598  
Tel: +65.6266.0100  
Fax: +65.6472.8738 / +65.6266.1161

## EUROPE

### BELGIUM

Henkel Electronics Materials (Belgium)  
N.V. Nijverheidsstraat 7  
B-2260 Westerlo  
Belgium  
Tel: +32.1457.5611  
Fax: +32.1458.5530

### UNITED KINGDOM

Henkel Ltd.  
Adhesives Limited Technologies House  
Wood Lane End  
Hemel Hempstead  
Hertfordshire HP2 4RQ  
Tel: +44.1442.278000  
Fax: +44.1442.278071

Across the Board,   
Around the Globe.  
[henkel-adhesives.com/electronics](http://henkel-adhesives.com/electronics)