

# LNPT<sup>TM</sup> THERMOCOMP<sup>TM</sup> COMPOUND 8K008V

## DESCRIPTION

LNP THERMOCOMP 8K008V is a Liquid Crystalline Polymer (LCP) based compound for Laser Direct Structuring application. Added features of this material are: High heat resistance for SMT processing, Smooth surface, low warpage and stable dielectric performance.

### GENERAL INFORMATION

|                       |                                                                                                                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Features              | Chemical Resistance, Good Processability, High Flow, Low Warpage, Thin Wall, Laser Direct Structuring, Dimensional stability, High temperature resistance, No PFAS intentionally added |
| Fillers               | Mineral                                                                                                                                                                                |
| Polymer Types         | Liquid Crystal Polymer (LCP)                                                                                                                                                           |
| Processing Techniques | Injection Molding                                                                                                                                                                      |

### INDUSTRY

Automotive  
Electrical and Electronics  
Industrial

### SUB INDUSTRY

Automotive Interiors  
Mobile Phone - Computer - Tablets  
Electrical

## TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES                                 | TYPICAL VALUES | UNITS             | TEST METHODS |
|--------------------------------------------|----------------|-------------------|--------------|
| <b>MECHANICAL <sup>(1)</sup></b>           |                |                   |              |
| Tensile Stress, brk, Type I, 5 mm/min      | 105            | MPa               | ASTM D638    |
| Tensile Strain, brk, Type I, 5 mm/min      | 2.5            | %                 | ASTM D638    |
| Tensile Modulus, 5 mm/min                  | 9800           | MPa               | ASTM D638    |
| Flexural Strength, 1.3 mm/min, 50 mm span  | 135            | MPa               | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span   | 9500           | MPa               | ASTM D790    |
| Tensile Stress, break, 5 mm/min            | 100            | MPa               | ISO 527      |
| Tensile Strain, break, 5 mm/min            | 2.5            | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                  | 9500           | MPa               | ISO 527      |
| Flexural Strength, 2 mm/min                | 130            | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                 | 9500           | MPa               | ISO 178      |
| <b>IMPACT <sup>(1)</sup></b>               |                |                   |              |
| Izod Impact, notched, 23°C                 | 45             | J/m               | ASTM D256    |
| Izod Impact, unnotched, 23°C               | 450            | J/m               | ASTM D4812   |
| Izod Impact, notched 80°10°4 +23°C         | 6              | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, unnotched 80°10°4 +23°C       | 20             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm | 5              | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy 23°C, Unnotch Edgew 80°10°4 sp=62mm | 21             | kJ/m <sup>2</sup> | ISO 179/1eU  |
| <b>THERMAL <sup>(1)</sup></b>              |                |                   |              |
| HDT, 0.45 MPa, 3.2 mm, unannealed          | 260            | °C                | ASTM D648    |
| HDT, 1.82 MPa, 3.2mm, unannealed           | 225            | °C                | ASTM D648    |
| HDT/Be, 0.45MPa Edgew 120°10°4 sp=100mm    | 260            | °C                | ISO 75/Be    |

| PROPERTIES                                  | TYPICAL VALUES                    | UNITS             | TEST METHODS |
|---------------------------------------------|-----------------------------------|-------------------|--------------|
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm     | 225                               | °C                | ISO 75/Ae    |
| CTE, 23°C to 150°C, flow                    | 1.1E-05                           | 1/°C              | ASTM E831    |
| CTE, 23°C to 150°C, xflow                   | 4.5E-05                           | 1/°C              | ASTM E831    |
| CTE, 23°C to 150°C, flow                    | 1.2E-05                           | 1/°C              | ISO 11359-2  |
| CTE, 23°C to 150°C, xflow                   | 5.0E-05                           | 1/°C              | ISO 11359-2  |
| Vicat Softening Temp, Rate A/50             | 255                               | °C                | ASTM D1525   |
| Vicat Softening Temp, Rate A/120            | 255                               | °C                | ASTM D1525   |
| Vicat Softening Temp, Rate B/50             | 190                               | °C                | ASTM D1525   |
| Vicat Softening Temp, Rate B/120            | 190                               | °C                | ASTM D1525   |
| Vicat Softening Temp, Rate A/50             | 250                               | °C                | ISO 306      |
| Vicat Softening Temp, Rate A/120            | 250                               | °C                | ISO 306      |
| Vicat Softening Temp, Rate B/50             | 180                               | °C                | ISO 306      |
| Vicat Softening Temp, Rate B/120            | 180                               | °C                | ISO 306      |
| <b>PHYSICAL <sup>(1)</sup></b>              |                                   |                   |              |
| Density                                     | 1.8                               | g/cm <sup>3</sup> | ASTM D792    |
| Water Absorption, (23°C/24hrs)              | 0.01                              | %                 | ISO 62-1     |
| Mold Shrinkage, flow <sup>(2)</sup>         | 0.21                              | %                 | SABIC method |
| Mold Shrinkage, xflow <sup>(2)</sup>        | 0.3                               | %                 | SABIC method |
| <b>ELECTRICAL <sup>(1)</sup></b>            |                                   |                   |              |
| Dielectric Constant, 1.1 GHz                | 4                                 | -                 | SABIC method |
| Dielectric Constant, 1.9 GHz                | 4.01                              | -                 | SABIC method |
| Dielectric Constant, 5 GHz                  | 3.98                              | -                 | SABIC method |
| Dielectric Constant, 10 GHz                 | 3.96                              | -                 | SABIC method |
| Dissipation Factor, 1.1 GHz                 | 0.005                             | -                 | SABIC method |
| Dissipation Factor, 1.9 GHz                 | 0.004                             | -                 | SABIC method |
| Dissipation Factor, 5 GHz                   | 0.003                             | -                 | SABIC method |
| Dissipation Factor, 10 GHz                  | 0.003                             | -                 | SABIC method |
| <b>FLAME CHARACTERISTICS <sup>(3)</sup></b> |                                   |                   |              |
| UL Yellow Card Link                         | <a href="#">E207780-104399815</a> | -                 | -            |
| UL Recognized, 94V-0 Flame Class Rating     | 3.0 – 3.3                         | mm                | UL 94        |
| <b>INJECTION MOLDING <sup>(4)</sup></b>     |                                   |                   |              |
| Drying Temperature                          | 120 – 150                         | °C                |              |
| Drying Time                                 | 4 – 6                             | Hrs               |              |
| Melt Temperature                            | 330 – 340                         | °C                |              |
| Nozzle Temperature                          | 325 – 335                         | °C                |              |
| Front - Zone 3 Temperature                  | 330 – 340                         | °C                |              |
| Middle - Zone 2 Temperature                 | 330 – 340                         | °C                |              |
| Rear - Zone 1 Temperature                   | 280 – 300                         | °C                |              |
| Mold Temperature                            | 90 – 120                          | °C                |              |
| Back Pressure                               | 0.15 – 0.3                        | MPa               |              |
| Injection Speed                             | 50 – 150                          | mm/s              |              |
| Screw Speed                                 | 80 – 100                          | rpm               |              |



- (1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.
- (2) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.
- (3) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.
- (4) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

### POST-PROCESSING LASER PARAMETERS

Laser Marking Power: 2-10 W

Laser Marking Frequency: 40-100 KHz

Laser Marking Speed: 2-4 m/s

### ADDITIONAL PRODUCT NOTES

No PFAS intentionally added: The grade listed in this document does not contain PFAS intentionally added during Seller's manufacturing process and is not expected to contain unintentional PFAS impurities. Each user is responsible for evaluating the presence of unintentional PFAS impurities.

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