

# LNPT<sup>™</sup> FARADEx<sup>™</sup> COMPOUND ES003E

EMI-X ES-1003 EM

## DESCRIPTION

LNP FARADEx ES003E compound is based on Polyetherimide (PEI) resin containing 15% stainless steel fiber. Added features of this grade include: Electrically Conductive, EMI/RFI shielding, Easy Molding.

### GENERAL INFORMATION

|                       |                                                                                                                           |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------|
| Features              | Electrically Conductive, EMI/RFI Shielding, Good Processability, High temperature resistance, No PFAS intentionally added |
| Fillers               | Stainless Steel Fiber                                                                                                     |
| Polymer Types         | Polyetherimide (PEI)                                                                                                      |
| Processing Techniques | Injection Molding                                                                                                         |

### INDUSTRY

Consumer  
Electrical and Electronics  
Industrial  
Packaging

### SUB INDUSTRY

Commercial Appliance  
Electronic Components  
Electrical, Material Handling  
Industrial Packaging

## TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES                                  | TYPICAL VALUES | UNITS             | TEST METHODS |
|---------------------------------------------|----------------|-------------------|--------------|
| <b>MECHANICAL <sup>(1)</sup></b>            |                |                   |              |
| Tensile Stress, yld, Type I, 5 mm/min       | 105            | MPa               | ASTM D638    |
| Tensile Stress, brk, Type I, 5 mm/min       | 105            | MPa               | ASTM D638    |
| Tensile Strain, yld, Type I, 5 mm/min       | 4.8            | %                 | ASTM D638    |
| Tensile Strain, brk, Type I, 5 mm/min       | 5              | %                 | ASTM D638    |
| Tensile Modulus, 5 mm/min                   | 4660           | MPa               | ASTM D638    |
| Flexural Modulus, 1.3 mm/min, 50 mm span    | 4590           | MPa               | ASTM D790    |
| Tensile Stress, yield, 5 mm/min             | 99             | MPa               | ISO 527      |
| Tensile Stress, break, 5 mm/min             | 98             | MPa               | ISO 527      |
| Tensile Strain, yield, 5 mm/min             | 4              | %                 | ISO 527      |
| Tensile Strain, break, 5 mm/min             | 4.3            | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                   | 4340           | MPa               | ISO 527      |
| Flexural Strength, 2 mm/min                 | 155            | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                  | 4310           | MPa               | ISO 178      |
| <b>IMPACT <sup>(1)</sup></b>                |                |                   |              |
| Izod Impact, unnotched, 23°C                | 485            | J/m               | ASTM D4812   |
| Izod Impact, notched, 23°C                  | 34             | J/m               | ASTM D256    |
| Multiaxial Impact                           | 1              | J                 | ISO 6603     |
| Instrumented Dart Impact Total Energy, 23°C | 7              | J                 | ASTM D3763   |
| Izod Impact, unnotched 80°10°4 +23°C        | 33             | kJ/m <sup>2</sup> | ISO 180/1U   |

| PROPERTIES                                   | TYPICAL VALUES    | UNITS             | TEST METHODS |
|----------------------------------------------|-------------------|-------------------|--------------|
| Izod Impact, notched 80*10*4 +23°C           | 5                 | kJ/m <sup>2</sup> | ISO 180/1A   |
| <b>THERMAL <sup>(1)</sup></b>                |                   |                   |              |
| HDT, 0.45 MPa, 3.2 mm, unannealed            | 190               | °C                | ASTM D648    |
| HDT, 1.82 MPa, 3.2mm, unannealed             | 180               | °C                | ASTM D648    |
| CTE, -30°C to 30°C, flow                     | 4.E-05            | 1/°C              | ASTM D696    |
| CTE, -30°C to 30°C, xflow                    | 4.4E-05           | 1/°C              | ASTM D696    |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm       | 194               | °C                | ISO 75/Bf    |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm        | 177               | °C                | ISO 75 /Af   |
| <b>PHYSICAL <sup>(1)</sup></b>               |                   |                   |              |
| Specific Gravity                             | 1.46              | -                 | ASTM D792    |
| Density                                      | 1.46              | g/cm <sup>3</sup> | ASTM D792    |
| Moisture Absorption, (23°C/50% RH/ 24 hrs)   | 0.19              | %                 | ASTM D570    |
| Mold Shrinkage, flow, 24 hrs <sup>(2)</sup>  | 0.6 – 0.8         | %                 | ASTM D955    |
| Mold Shrinkage, xflow, 24 hrs <sup>(2)</sup> | 0.8 – 1           | %                 | ASTM D955    |
| Moisture Absorption (23°C / 50% RH)          | 0.27              | %                 | ISO 62       |
| <b>ELECTRICAL <sup>(1)</sup></b>             |                   |                   |              |
| Volume Resistivity <sup>(3)</sup>            | 8.9E+01           | Ω.cm              | ASTM D257    |
| Surface Resistivity <sup>(3)</sup>           | 1.0E+01 – 1.0E+03 | Ω                 | ASTM D257    |
| Shielding Effectivness @ 2.5mm               | 60                | dB                | SABIC method |
| <b>INJECTION MOLDING <sup>(4)</sup></b>      |                   |                   |              |
| Drying Temperature                           | 150               | °C                |              |
| Drying Time                                  | 4 – 6             | Hrs               |              |
| Maximum Moisture Content                     | 0.02              | %                 |              |
| Melt Temperature                             | 360 – 400         | °C                |              |
| Rear - Zone 1 Temperature                    | 360 – 380         | °C                |              |
| Middle - Zone 2 Temperature                  | 370 – 390         | °C                |              |
| Front - Zone 3 Temperature                   | 380 – 400         | °C                |              |
| Nozzle Temperature                           | 390 – 400         | °C                |              |
| Mold Temperature                             | 140 – 180         | °C                |              |
| Back Pressure                                | 0.3 – 0.7         | MPa               |              |
| Screw speed (Circumferential speed)          | 0.2 – 0.3         | m/s               |              |
| Vent Depth                                   | 0.025 – 0.076     | mm                |              |

(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) Measurement meets requirements as specified in ASTM D4496.

(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.

## 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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