

## LUBMER™ L5000

Mitsui Chemicals America, Inc. - High Molecular Weight Polyethylene

### General Information

#### General

|                 |                                                                                 |
|-----------------|---------------------------------------------------------------------------------|
| Material Status | • Commercial: Active                                                            |
| Availability    | • North America                                                                 |
| Features        | • Abrasion Resistant • Low Friction<br>• Good Impact Resistance • Sound Damping |
| Uses            | • Automotive Interior Parts • Gears<br>• Bearings • Thin-walled Parts           |
| Forms           | • Pellets                                                                       |

### Properties <sup>1</sup>

| Physical                                                             | Nominal Value | Unit     | Test Method             |
|----------------------------------------------------------------------|---------------|----------|-------------------------|
| Density / Specific Gravity                                           | 0.968         |          | ASTM D792               |
| Molding Shrinkage - Flow (0.0787 in)                                 | 0.018         | in/in    | ASTM D955               |
| Molding Shrinkage - Across Flow (0.0787 in)                          | 0.016         | in/in    | ASTM D955               |
| Water Absorption (24 hr)                                             | 0.010         | %        | ASTM D570               |
| Mechanical                                                           | Nominal Value | Unit     | Test Method             |
| Tensile Strength <sup>2</sup> (Break, 73°F)                          | 6820          | psi      | ASTM D638               |
| Tensile Elongation <sup>2</sup> (Break, 73°F)                        | 10            | %        | ASTM D638               |
| Flexural Modulus <sup>3</sup> (73°F, 0.118 in, 1.89 in Span)         | 235000        | psi      | ASTM D790               |
| Flexural Strength <sup>3</sup> (Yield, 73°F, 0.118 in, 1.89 in Span) | 5510          | psi      | ASTM D790               |
| Impact                                                               | Nominal Value | Unit     | Test Method             |
| Notched Izod Impact (73°F, 0.0787 in)                                | 3.6           | ft-lb/in | ASTM D256               |
| Hardness                                                             | Nominal Value | Unit     | Test Method             |
| Rockwell Hardness (R-Scale)                                          | 51            |          | ASTM D785               |
| Thermal                                                              | Nominal Value | Unit     | Test Method             |
| Deflection Temperature Under Load (66 psi, Unannealed)               | 176           | °F       | ASTM D648               |
| Vicat Softening Temperature                                          | 266           | °F       | ASTM D1525 <sup>4</sup> |
| CLTE - Flow                                                          | 7.2E-5        | in/in/°F | ASTM D696               |
| Electrical                                                           | Nominal Value | Unit     | Test Method             |
| Volume Resistivity                                                   | 1.0E+17       | ohms-cm  | ASTM D257               |
| Dielectric Strength                                                  | 1100          | V/mil    | ASTM D149               |
| Dielectric Constant (73°F)                                           | 2.40          |          | ASTM D150               |
| Dissipation Factor (1 MHz)                                           | 1.0E-4        |          | ASTM D150               |
| Flammability                                                         | Nominal Value | Unit     | Test Method             |
| Flame Rating (0.06 in)                                               | HB            |          | UL 94                   |

#### Additional Information

Kinetic Coefficient of Friction, MCI Method, Lubmer-contact material, SUS 304, surface roughness, 6S: 0.09  
Heat generation temp, MCI Method, Lubmer-contact material, SUS 304, surface roughness, 6S: 67°C (30 MPa m/min)  
Critical PV value, MCI Method, Lubmer-contact material, SUS 304, surface roughness, 6S: >= 30 MPa m/min  
Abrasion Loss, MCI Method, Lubmer-contact material, SUS 304, surface roughness, 6S: 150E-10 cm<sup>3</sup>/ kg-m  
Volume Resistivity, ASTM D257: 1E17 to 1E18 ohm-cm  
Dissipation Factor, ASTM D150, 1MHz: 1E-4 to 2E-4  
Spiral Flow, MCI method, 4.8mm radius: 30 cm (270°C)  
The values listed as Mold Shrink, Linear Flow and Trans, ASTM D955, were tested in accordance with MCI methods.

### Processing Information

| Injection          | Nominal Value | Unit |
|--------------------|---------------|------|
| Rear Temperature   | 410           | °F   |
| Middle Temperature | 473           | °F   |



|                    |              |
|--------------------|--------------|
| Front Temperature  | 518 °F       |
| Nozzle Temperature | 518 °F       |
| Mold Temperature   | 75 to 104 °F |
| Injection Pressure | 14200 psi    |
| Injection Rate     | Moderate     |

Notes

- <sup>1</sup> Typical properties: these are not to be construed as specifications.
- <sup>2</sup> Type V, 2.0 in/min
- <sup>3</sup> 0.20 in/min
- <sup>4</sup> Loading 1 (10 N)

