

# Estane® AG 4950 TPU

Thermoplastic Polyurethane Elastomer (Polyether)

Lubrizol Advanced Materials, Inc.

## Message:

Type: Estane® AG 4950 is a Polyether based aliphatic Thermoplastic Polyurethane (TPU) specifically formulated to be used as an adhesive interlayer in transparencies for electronic displays, aerospace, architectural and transportation applications.

Features: Low modulus, low temperature processing adhesive for difficult glass-clad polycarbonate structures.

Uses: For difficult asymmetrical glass clad and plastic laminates.

| General Information                     |                           |                   |                 |
|---|---------------------------|-------------------|-----------------|
| Features                                | Aliphatic                 |                   |                 |
|   | Low Temperature Resistant |                   |                 |
| Uses                                    | Adhesives                 |                   |                 |
|   | Aerospace Applications    |                   |                 |
|   | Electronic Displays       |                   |                 |
|   | Laminates                 |                   |                 |
| Forms                                   | Pellets                   |                   |                 |
| Physical                                | Nominal Value             | Unit              | Test Method     |
| Specific Gravity                        | 1.06                      | g/cm <sup>3</sup> | ASTM D792       |
| Elastomers                              | Nominal Value             | Unit              | Test Method     |
| Tensile Stress <sup>1</sup>             |                           |                   | ASTM D412       |
| 100% Strain                             | 2.34                      | MPa               |                 |
| 200% Strain                             | 3.28                      | MPa               |                 |
| 300% Strain                             | 4.48                      | MPa               |                 |
| Tensile Strength <sup>2</sup> (Break)   | 24.1                      | MPa               | ASTM D412       |
| Tensile Elongation <sup>3</sup> (Break) | 770                       | %                 | ASTM D412       |
| Thermal                                 | Nominal Value             | Unit              | Test Method     |
| Glass Transition Temperature            | -60.0                     | °C                | DSC             |
| CLTE - Flow                             | 3.0E-4                    | cm/cm/°C          | Internal Method |
| TMA                                     |                           |                   | Internal Method |
| Peak                                    | 92                        | °C                |                 |
| Range                                   | 60 to 140                 | °C                |                 |
| Optical                                 | Nominal Value             | Unit              | Test Method     |
| Refractive Index <sup>4</sup>           | 1.486                     |                   | ASTM D542       |
| Transmittance <sup>5</sup> (1270 µm)    | 90.0                      | %                 | ASTM D1003      |
| Haze <sup>6</sup> (1270 µm)             | 0.30                      | %                 | ASTM D1003      |
| Yellowness Index <sup>7</sup> (1.27 mm) | < 1.0                     | YI                | ASTM D1925      |
| NOTE                                    |                           |                   |                 |
| 1.                                      | 510 mm/min                |                   |                 |

|    |                                      |
|----|--------------------------------------|
| 2. | 510 mm/min                           |
| 3. | 510 mm/min                           |
| 4. | Between two pieces of 1/8 inch glass |
| 5. | Between two pieces of 1/8 inch glass |
| 6. | Between two pieces of 1/8 inch glass |
| 7. | Between two pieces of 1/8 inch glass |

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