



## Technical Data Sheet

# ENGAGE™ PV 8680 Polyolefin Elastomer

### Overview

ENGAGE™ PV 8680 Polyolefin Elastomer is an ethylene-butene copolymer that offers excellent performance in photovoltaic module encapsulant applications.

ENGAGE™ PV 8680 Polyolefin Elastomer provides high transmittance, excellent electrical properties, and exceptional anti-damp heat aging, anti-UV aging, and weather resistance properties.

#### Main Characteristics:

- Pellet form
- High volume resistivity
- High transmittance
- Low water vapor transmission rate
- Exceptional anti-damp heat aging, anti-UV aging, and weather resistance when cured

#### Applications:

- Photovoltaic module encapsulant

### Sustainability Attribute:



### Physical Properties

| Physical                                                           | Nominal Value | Unit (English)    | Nominal Value | Unit (SI)         | Test Method |
|--------------------------------------------------------------------|---------------|-------------------|---------------|-------------------|-------------|
| Density                                                            | 0.872         | g/cm <sup>3</sup> | 0.872         | g/cm <sup>3</sup> | ASTM D792   |
| Melt Index (190°C/2.16 kg)                                         | 5.0           | g/10 min          | 5.0           | g/10 min          | ASTM D1238  |
| <b>Mechanical</b>                                                  |               |                   |               |                   |             |
| Tensile Modulus - 100% Secant <sup>2</sup><br>(Compression Molded) | 239           | psi               | 1.65          | MPa               | ASTM D638   |
| Tensile Strength <sup>2</sup><br>(Break, Compression Molded)       | 772           | psi               | 5.32          | MPa               | ASTM D638   |
| Tensile Elongation <sup>2</sup><br>Break, Compression Molded       | 1300          | %                 | 1300          | %                 | ASTM D638   |

1. ASTM: American Society for Testing and Materials
2. 20 in/min (510 mm/min)

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

## Physical Properties (Cont.)

| Mechanical                             | Nominal Value | Unit (English) | Nominal Value | Unit (SI) | Test Method |
|----------------------------------------|---------------|----------------|---------------|-----------|-------------|
| Flexural Modulus                       |               |                |               |           | ASTM D790   |
| 1% Secant : Compression Molded         | 972           | psi            | 6.70          | MPa       |             |
| 2% Secant : Compression Molded         | 943           | psi            | 6.50          | MPa       |             |
| <b>Elastomers</b>                      |               |                |               |           |             |
| Tear Strength <sup>3</sup>             | 158           | lbf/in         | 27.6          | kN/m      | ASTM D624   |
| <b>Hardness</b>                        |               |                |               |           |             |
| Durometer Hardness                     |               |                |               |           | ASTM D2240  |
| Shore A, Compression Molded            | 67            |                | 67            |           |             |
| Shore D, Compression Molded            | 17            |                | 17            |           |             |
| <b>Thermal</b>                         |               |                |               |           |             |
| Glass Transition Temperature           | -50.8         | °F             | -46.0         | °C        | Dow Method  |
| Vicat Softening Temperature            | 102           | °F             | 39.0          | °C        | ASTM D1525  |
| Melting Temperature (DSC) <sup>4</sup> | 149           | °F             | 65.0          | °C        | Dow Method  |
| Peak Crystallization Temperature (DSC) | 117           | °F             | 47.0          | °C        | Dow Method  |
| <b>Electrical</b>                      |               |                |               |           |             |
| Volume Resistivity                     | > 1.0E+15     | ohms·cm        | > 1.0E+15     | ohms·cm   | Dow Method  |

3. Die C  
4. 10°C/min

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