

# TOTAL Polyethylene EVA 1040 VN 4

Ethylene Vinyl Acetate Copolymer

TOTAL Refining & Chemicals

Message:

EVA 1040 VN 4 is made by a high pressure tubular process.  
Grade for very flexible films with high transparency and good mechanical properties.  
Application examples : thin stretch film for food packaging, coextrusion, cling film.

| General Information |                                              |
|---------------------|----------------------------------------------|
| Additive            | Antioxidation                                |
| Features            | Antioxidation                                |
| Uses                | Films                                        |
|                     | Food packaging                               |
|                     | Shrinkable film                              |
| Forms               | Particle                                     |
| Processing Method   | Blow film                                    |
| Multi-Point Data    | Specific Volume vs Temperature (ISO 11403-2) |
|                     | Viscosity vs. Shear Rate (ISO 11403-2)       |

| Physical                                  | Nominal Value | Unit                   | Test Method           |
|-------------------------------------------|---------------|------------------------|-----------------------|
| Density                                   |               |                        |                       |
| --                                        | 0.935         | g/cm <sup>3</sup>      | ISO 1183              |
| --                                        | 935           | kg/m <sup>3</sup>      | ISO 1183 <sup>1</sup> |
| Melt Mass-Flow Rate (MFR) (190°C/2.16 kg) | 4.5           | g/10 min               | ISO 1133              |
| Melt volume-flow rate (190°C/2.16 kg)     | 5.00          | cm <sup>3</sup> /10min | ISO 1133 <sup>2</sup> |
| Vinyl Acetate Content                     | 14.0          | wt%                    |                       |

| Mechanical                  | Nominal Value | Unit | Test Method            |
|-----------------------------|---------------|------|------------------------|
| Tensile Modulus             |               |      |                        |
| --                          | 62.0          | MPa  | ISO 527-2              |
| --                          | 75.0          | MPa  | ISO 527-2 <sup>3</sup> |
| Tensile Stress (Yield)      | 5.00          | MPa  | ISO 527-2 <sup>4</sup> |
| Tensile Strain (Yield)      | 25            | %    | ISO 527-2 <sup>5</sup> |
| Tensile Elongation at Break | > 50          | %    | ISO 527-2 <sup>6</sup> |

| Films                         | Nominal Value | Unit | Test Method |
|-------------------------------|---------------|------|-------------|
| Tensile Stress                |               |      | ISO 527-3   |
| MD: Yield, 40 µm, blown film  | 6.50          | MPa  | ISO 527-3   |
| TD: Yield, 40 µm, blown film  | 4.90          | MPa  | ISO 527-3   |
| MD: Broken, 40 µm, blown film | 27.0          | MPa  | ISO 527-3   |
| TD: Broken, 40 µm, blown film | 23.0          | MPa  | ISO 527-3   |

| Tensile Elongation                   |               |      | ISO 527-3                |
|--------------------------------------|---------------|------|--------------------------|
| MD: Broken, 40 µm, blown film        | 370           | %    | ISO 527-3                |
| TD: Broken, 40 µm, blown film        | 650           | %    | ISO 527-3                |
| Dart Drop Impact (40 µm, Blown Film) | 300           | g    | ISO 7765-1               |
| Thermal                              | Nominal Value | Unit | Test Method              |
| Vicat Softening Temperature          |               |      |                          |
| --                                   | 68.0          | °C   | ISO 306                  |
| 50°C/h, B (50N)                      | 68.0          | °C   | ISO 306 <sup>7</sup>     |
| Melting Temperature (DSC)            |               |      |                          |
| --                                   | 90.0          | °C   | ISO 3146                 |
| -- <sup>8</sup>                      | 92.0          | °C   | ISO 11357-3 <sup>9</sup> |

#### Additional Information

The value listed as Melting Temperature, ISO 3146, was tested in accordance with ISO 11357. Elmendorf, ISO 6383-2, MD, Blown Film, 40 µm: 36 N/mm Elmendorf, ISO 6383-2, TD, Blown Film, 40 µm: 44 N/mm Haze, ISO 14782, Blown Film, 40 µm: 2%

#### Extrusion instructions

Advised Temperature Profile: 140 to 170°C Possible Range of Thicknesses: 15 to 100 µ

#### NOTE

1. ?????,?? ISO 10350 ???  
23°C/50%r.h. ???
2. ?????,?? ISO 10350 ???  
23°C/50%r.h. ???
3. ?????,?? ISO 10350 ???  
23°C/50%r.h. ???
4. ?????,?? ISO 10350 ???  
23°C/50%r.h. ???
5. ?????,?? ISO 10350 ???  
23°C/50%r.h. ???
6. ?????,?? ISO 10350 ???  
23°C/50%r.h. ???
7. ?????,?? ISO 10350 ???  
23°C/50%r.h. ???
8. 10 °C/min
9. ?????,?? ISO 10350 ???  
23°C/50%r.h. ???

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