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## Technical data sheet

### GREENFLEX<sup>®</sup>

### FD 20

EVA

Ethylene vinyl acetate copolymer

Greenflex FD 20 is an ethylene vinyl acetate copolymer (EVA) suitable for blown film extrusion. Films produced with Greenflex FD 20 exhibit high flexibility and high tear resistance.

### Main Application

Greenflex FD 20 is recommended for thermo-shrinkable films and multilayer stretch films for food packaging, included deep-frozen food packaging.

### Main Properties

| Resin Properties                | Value | Unit              | Test Method     |
|---------------------------------|-------|-------------------|-----------------|
| Melt Flow Rate (190 °C/2,16 kg) | 0,5   | g/10min           | ISO 1133        |
| Vinyl acetate content           | 5     | %                 | Internal method |
| Density                         | 0,924 | g/cm <sup>3</sup> | ISO 1183        |
| Melting Point                   | 102   | °C                | Internal method |
| Brittleness temperature         | < -80 | °C                | ASTM D 746      |
| Vicat softening point (1 kg)    | 86    | °C                | ISO 306/A       |

| Film Properties *                      | Value    | Unit   | Test Method  |
|----------------------------------------|----------|--------|--------------|
| Tensile stress at yield MD             | 8        | MPa    | ISO 527-3    |
| Tensile stress at yield TD             | 8        | MPa    | ISO 527-3    |
| Tensile stress at break MD             | 26       | MPa    | ISO 527-3    |
| Tensile stress at break TD             | 26       | MPa    | ISO 527-3    |
| Elongation at break MD                 | 450      | %      | ISO 527-3    |
| Elongation at break TD                 | 600      | %      | ISO 527-3    |
| 1% Secant modulus MD                   | 120      | MPa    | ISO 527-3    |
| 1% Secant modulus TD                   | 125      | MPa    | ISO 527-3    |
| Elmendorf tear resistance MD           | 26       | N/mm   | ISO 6383-2   |
| Elmendorf tear resistance TD           | 40       | N/mm   | ISO 6383-2   |
| Impact resistance F50 (Dart Drop Test) | 420      | g      | ISO 7765-1/A |
| Dynamic coefficient of friction (COF)  | > 0,5    | -      | ISO 8295     |
| Haze                                   | 4        | %      | ISO 14782    |
| Gloss, 45°                             | 73       | %      | ASTM D 2457  |
| Recommended film thickness             | 50 ÷ 200 | micron | -            |

| Mechanical Properties ** | Value | Unit    | Test Method |
|--------------------------|-------|---------|-------------|
| Shore A                  | 95    | Shore A | ISO 868 A   |
| Shore D                  | 44    | Shore D | ISO 868 A   |

(\*) Film properties are typical of a blown film extruded at 200 °C. Actual properties may vary depending upon operating conditions and additive package.

(\*\*) Values are referred to injection moulded specimens. Actual properties are typical and may vary depending upon operating conditions.

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## Processing notes

Greenflex FD 20 can be processed by conventional blown film extrusion equipments. Operation temperature from 170 °C to 200 °C is recommended. Depending on extrusion conditions, the suggested film thickness is from 50 to 200 µm.

## Storage and Handling

Greenflex FD 20 is supplied in pellet form. This material may readily be conveyed and bulk fed through equipment designed for conventional pelletised polyethylene resin, provided the equipment is designed to prevent accumulation of the fines and dust particles that are contained in all polyethylene resins. These fines and dust particles can, under certain conditions, pose an explosion hazard. We recommend that the conveying system used be equipped with filters of adequate size, operated and maintained in such a manner to ensure that no leaks develop and earthed adequately. We further recommend that good housekeeping should be practised throughout your facility.

The product should be stored in dry conditions at temperatures below 50 °C and protected from sunlight. Improper storage can initiate degradation which results in odour generation, colour changes and can have negative effects on the physical properties of the product.

Before using this product it is recommended to read and understand the relevant Safety Data Sheet.

## Availability

Contact the Versalis sales office nearest to you regarding availability and your specific application requirements.

## Food Contact Status

Greenflex FD 20 complies with the rules and regulations of the European Union, as well as other countries, regarding the use of plastic materials in food contact applications. Certificates of compliance are available upon request.

## Technical Management Polyethylene

### Center and South Europe and Americas

Versalis S.p.A.

Head Office

Piazza Boldrini 1 - 20097 San Donato Milanese (MI) - Italy

tel. +39 0252032998 +39 0252042262

+39 0252042005 +39 0252032072

+39 0252042984

Mantova

Via Taliercio 14 - 46100 Mantova (MN) - Italy

tel. +39 0376305520 +39 0376305620

### North Europe and ROW

Versalis S.p.A.

4531 Route des Dunes - CS 20060 Mardyck

59279 Dunkerque - France

tel. +33 328235516 +33 328235512

Duesseldorfer Str. 13 65760

Eschborn - Germany

tel. +49 15140260561

**IMPORTANT:** please consult the relevant safety data sheet for more detailed information. The information and data presented herein are to the best of our knowledge true and accurate but no warranty or guarantee, expressed or implied, is made nor is any liability accepted with respect to the use of such information and data. Versalis is available to provide the guaranteed values for each product on demand.

**DISCLAIMER:** it is the sole responsibility of the end-user to determine the safety, the regulatory compliance as well as the technical suitability of the product for the intended application. The product is not intended for use in medical devices and pharmaceutical applications; Versalis declines all responsibility and cannot be held liable in case of use in the above mentioned applications.