



# GREENFLEX® FH 45 BA

EVA  
Ethylene vinyl acetate copolymer bio attributed



## SUSTAINABILITY

The product Greenflex FH 45 BA 'Bio attributed' is a highly sustainable EVA produced using bionafta from renewable raw materials together with traditional raw materials. In order to attribute the sustainable feedstock component to the final product Versalis applies the Mass Balance approach, a recognized methodology that allows to trace the flow of materials along the value chain and to assign the sustainability characteristic of the raw material to the final product on a documentary basis. Greenflex FH 45 BA provides the same chemical composition and physical-mechanical performance of the traditional grade, in addition is accompanied by a sustainability declaration that certifies the share of bio attributed product. It is an ethylene vinyl acetate copolymer (EVA) for blown and cast film extrusion. The production of Greenflex FH 45 BA allows to contribute to the circular economy, since the bionafta used derives from renewable resources (e.g. vegetable oils). Greenflex FH 45 BA will be bio attributed for 83%. The exact amount of 'bio attributed' product will be reported in the sustainability certificate issued upon the delivery of the product.

## MAIN PROPERTIES

Resin Properties	Value	Unit	Test method
Melt Flow Rate (190 °C/2,16 kg)	1,8	g/10min	ISO 1133
Vinyl acetate content	17	%	Internal Method
Density	0,938	g/cm <sup>3</sup>	ISO 1183
Melting Point	88	°C	Internal Method
Brittleness temperature	< -80	°C	ASTM D 746
Vicat softening point (1 kg)	62	°C	ISO 306/A
Film Properties *	Value	Unit	Test method
Tensile stress at yield MD	5	MPa	ISO 527-3
Tensile stress at yield TD	5	MPa	ISO 527-3
Tensile stress at break MD	32	MPa	ISO 527-3
Tensile stress at break TD	31	MPa	ISO 527-3
Elongation at break MD	500	%	ISO 527-3
Elongation at break TD	700	%	ISO 527-3
1% Secant modulus MD	45	MPa	ISO 527-3
1% Secant modulus TD	50	MPa	ISO 527-3
Elmendorf tear resistance MD	25	N/mm	ISO 6383-2
Elmendorf tear resistance TD	45	N/mm	ISO 6383-2
Impact resistance F50 (Dart Drop Test)	450	g	ISO 7765-1/A
Dynamic coefficient of friction (COF)	> 0,5	-	ISO 8295
Haze	2	%	ISO 14782
Gloss, 45°	85	%	ASTM D 2457
Recommended film thickness	25 ÷ 80	micron	-
Mechanical Properties **	Value	Unit	Test method
Shore A	89	Shore A	ISO 868 A
Shore D	36	Shore D	ISO 868 A

(\*) Film properties are typical of a blown film extruded at 160 °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.

## MAIN APPLICATIONS

Greenflex FH 45 BA is recommended for silage stretch film application to ensure optimum cling properties when used in combination with other cling agent, production of co-extrusion film, lamination film, standard stretch film, stretch hood, barrier film for food packaging, agricultural film and, generally, for all those applications where the purity of products designed for film extrusion is required. Films produced with Greenflex FH 45 BA show a low fish eyes content, good elasticity, good optical properties, good sealability at low temperatures.

## PROCESSING NOTES

Greenflex FH 45 BA Can be processed by conventional blown film extrusion equipments. Operation temperature from 150 °C to 170 °C is recommended. Depending on extrusion conditions, the suggested film thickness is from 25 to 80 µm.

## STORAGE AND HANDLING

Greenflex FH 45 BA is supplied in pellet form. This material may readily be conveyed and bulk fed through equipment designed for conventional pelletized 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 practiced 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 odor generation, color 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 FH 45 BA 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  
tel. +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 - Deutschland  
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.