Technical Data Sheet

FLEXIRENE®
FG 23 F BCA

LLDPE
Linear low density polyethylene bio circular attributed

SUSTAINABILITY

The product Flexirene FG 23 F BCA 'Bio Circular attributed' is a highly sustainable LLDPE 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. Flexirene FG 23 F BCA 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 a butene copolymer linear low density polyethylene (C4-LLDPE) with antioxidants, suitable for blown film technology. The production of Flexirene FG 23 F BCA allows to contribute to the circular economy, since the bionafta used derives from waste from industrial processing of organic substances (e.g. used cooking oils). Flexirene FG 23 F BCA will be bio circular attributed for 90%. The exact amount of "bio circular 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)	1,0	g/10min	ISO 1133
Melt Flow Rate (190 °C/5 kg)	-	g/10min	ISO 1133
Melt Flow Rate (190 °C/21,6 kg)	-	g/10min	ISO 1133
Density	0,918	g/cm^3	ISO 1183
Melting Point	123	°C	Internal Method
Brittleness temperature	< -70	°C	ASTM D 746
Vicat softening point (1 kg)	101	°C	ISO 306/A

Film Properties *	Value	Unit	Test method
Tensile stress at yield MD	11	MPa	ISO 527-3
Tensile stress at yield TD	11	MPa	ISO 527-3
Tensile stress at break MD	42	MPa	ISO 527-3
Tensile stress at break TD	33	MPa	ISO 527-3
Elongation at break MD	600	%	ISO 527-3
Elongation at break TD	750	%	ISO 527-3
1% Secant modulus MD	150	MPa	ISO 527-3
1% Secant modulus TD	175	MPa	ISO 527-3
Elmendorf tear resistance MD	40	N/mm	ISO 6383-2
Elmendorf tear resistance TD	150	N/mm	ISO 6383-2
Impact resistance F50 (Dart Drop Test)	120	g	ISO 7765-1/A
Dynamic coefficient of friction (COF)	0,11	-	ISO 8295
Haze	15	%	ISO 14782
Gloss, 45°	50	%	ASTM D 2457
Recommended film thickness	15 ÷ 50	micron	-

(*) Typical value for a film extruded between 190 - 230 °C, with BUR 2,5, thickness 25 µm. Actual properties are typical and may vary depending upon operating conditions and additive package.

Manufacturer website: https://www.versalis.eni.com/

FLEXIRENE® LLDPE / Linear low density polyethylene bio circular attributed **FG 23 F BCA**

MAIN APPLICATIONS

Flexirene FG 23 F BCA represents the version with slip and antiblock agents of Flexirene FG 20 F BCA. It is recommended for for the production of general purpose film, industrial liners and shoppers; its use is suggested both in blend and in coextrusion with LDPE.

PROCESSING NOTES

Flexirene FG 23 F BCA is easily processable using blown film technology. Melt temperature should be between 190 °C and 230 °C. Recommended thickness: 15 - 50 µm.

STORAGE AND HANDLING

Flexirene FG 23 F BCA 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

Flexirene FG 23 F BCA 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.

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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.

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