Technical Data Sheet

FLEXIRENE®
MS 20 A BA

LLDPE
Linear low density polyethylene bio attributed

SUSTAINABILITY

The product Flexirene MS 20 A BA 'Bio 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 MS 20 A 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 is a linear low density polyethylene (LLDPE) with antioxidants, suitable for injection moulding. The production of Flexirene MS 20 A BA allows to contribute to the circular economy, since the bionafta used derives from renewable resources (e.g. vegetable oils). Flexirene MS 20 A BA will be bio attributed for 90%. 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)	26	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	0,921	g/cm^3	ISO 1183
Melting Point	116	°C	Internal Method
Brittleness temperature	< -70	°C	ASTM D 746
Vicat softening point (1 kg)	88	°C	ISO 306/A

Mechanical Properties *	Value	Unit	Test method
Tensile stress at yield	9	MPa	ISO 527
Tensile stress at break	10	MPa	ISO 527
Tensile strain at yield	-	%	ISO 527
Elongation at break MD	> 400	%	ISO 527
Flexural modulus	150	MPa	ISO 178
Hardness Shore D	48	-	ISO 868 A
Falling Weight	-	J	ISO 6603-2
Izod impact strength, notched	-	J/m	IASTM D 256
Environmental Stress Cracking Resistance (ESCR)	-	h	ASTM D 1693(B)

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

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FLEXIRENE® LLDPE / Linear low density polyethylene bio attributed **MS 20 A BA**

MAIN APPLICATIONS

Flexirene MS 20 A BA is recommended for the production of lids, caps and closures for chemical products and containers, and is suggested for low temperature applications. Flexirene MS 20 A BA is characterised by a high flowability which makes it ideal for masterbatches preparation for LDPE and LLDPE.

PROCESSING NOTES

Flexirene MS 20 A BA is easy to mould with the newest injection moulding machines. Results are excellent. Typical processing conditions (**):

Temperature profile of the barrel (°C): 160 - 210

Temperature of the mould (°C): 10 - 40

(**) Processing conditions are depending on several parameters: the shape of the part to be manufactured, the localisation of the injection point, the injection moulding machine and the cooling of the mould.

STORAGE AND HANDLING

Flexirene MS 20 A 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

Flexirene MS 20 A 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

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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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