SABIC® HDPE F04660

HIGH DENSITY POLYETHYLENE

DESCRIPTION

SABIC® HDPE F04660 is a homopolymer film grade with a broad processing window and high stiffness. It has good moisture barrier properties and can be blended with LDPE and LLDPE to improve film strength and rigidity.

This product is not intended for and must not be used in any pharmaceutical/medical applications.

TYPICAL APPLICATIONS

SABIC® HDPE F04660 is typically used for applications where high stiffness is required. It can be used in the middle layer in a coex structure or blended with LDPE and LLDPE to increase stiffness and mechanical properties. It has good water vapor barrier properties required for certain food packaging.

TYPICAL PROPERTY VALUES

Revision 20211102

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
POLYMER PROPERTIES			
Melt Flow Rate (MFR)			
at 190 °C and 21.6 kg	46	dg/min	ASTM D1238
at 190 °C and 2.16 kg	0.7	dg/min	ASTM D1238
at 190 °C and 5 kg	3	dg/min	ISO 1133
Density	961	kg/m³	ASTM D1505
MECHANICAL PROPERTIES			
Tensile test			
stress at break	18	MPa	ISO 527-2
tensile modulus	1250	MPa	ISO 527-2
stress at yield	29	MPa	ISO 527-2
Tensile test [1] [2]			
strain at break	>1000	%	ISO 527-2
Flexural test			
Flexural modulus	1550	MPa	ISO 178
Flexural strength	31	MPa	ISO 178
Izod impact notched			
at -30 °C	6	kJ/m²	ISO 180/A
at 23 °C	10	kJ/m²	ISO 180/A
Hardness Shore D	63	-	ISO 868
ESCR (10% Igepal CO-630), F50	15	h	ASTM D1693B
FILM PROPERTIES [3]			
Dart Impact F50	<20	g	ASTM D1709
Tear strength TD Elmendorf	800	g/µm	ASTM D1922
Tear strength MD Elmendorf	10	g/µm	ASTM D1922
Tensile test film [4]			
Strain at break TD	3	%	ASTM D882
Modulus of elasticity TD	1700	MPa	ASTM D882
Stress at break MD	67	MPa	ASTM D882
Stress at break TD	37	MPa	ASTM D882

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Modulus of elasticity MD	1250	MPa	ASTM D882
Strain at break MD	490	%	ASTM D882
THERMAL PROPERTIES			
Heat deflection temperature			
at 0.45 MPa (HDT/B)	88	°C	ISO 75-2
Vicat Softening Temperature [5] [6]			
	129	°C	ASTM D1525
Vicat softening temperature			
at 10 N (VST/A)	129	°C	ISO 306
DSC test			
melting point	134	°C	ISO 11357-3
enthalpy change	223	J/g	ISO 11357-3

(1) Test specimen according to ISO 527-2 type 1BA, thickness 2 mm
(2) Speed of testing: 50 mm/min
(3) Properties are based on 25 µm film produced at 2.5:1 BUR using 100% F04660.
(4) Film properties have been measured on 25 µm blown film with a BUR of 4.
(5) Compression moulding of test specimen according to ISO 1872-2
(6) Conditioning of test specimen: temp. 23 °C, relative humidity 50 %, 24 hours

PROCESSING CONDITIONS

SABIC® HDPE F04660 can be extruded at melt temperatures between 190 and 220 °C.

ENVIRONMENT AND RECYCLING

The environmental aspects of any packaging material do not only imply waste issues but have to be considered in relation with the use of natural resources, the preservations of foodstuffs, etc. SABIC Europe considers polyethylene to be an environmentally efficient packaging material. Its low specific energy consumption and insignificant emissions to air and water designate polyethylene as the ecological alternative in comparison with the traditional packaging materials. Recycling of packaging materials is supported by SABIC Europe whenever ecological and social benefits are achieved and where a social infrastructure for selective collecting and sorting of packaging is fostered. Whenever 'thermal' recycling of packaging (i.e. incineration with energy recovery) is carried out, polyethylene -with its fairly simple molecular structure and low amount of additives- is considered to be a trouble-free fuel.

STORAGE AND HANDLING

Polyethylenes resins (in pelletised or powder form) should be stored in such a way that it prevents exposure to direct sunlight and/or heat, as this may lead to quality deterioration. The storage location should also be dry, dust free and the ambient temperature should not exceed 50 °C. Not complying with these precautionary measures can lead to a degradation of the product which can result in colour changes, bad smell and inadequate product performance. It is also advisable to process polyethylene resins (in pelletised or powder form) within 6 months after delivery, this because also excessive aging of polyethylene can lead to a deterioration in quality.

DISCLAIMER