SABIC® HDPE F4520

HIGH DENSITY POLYETHYLENE

DESCRIPTION

SABIC® HDPE F4520 is typically used for blow molding packaging up to 20 l, combining medium stiffness with a good ESCR. This grade is typically used for packaging of aggressive detergents and technical articles such as spare fuel tanks, air- and cable ducts.

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

TYPICAL PROPERTY VALUES

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
POLYMER PROPERTIES			
Melt Flow Rate (MFR)			
at 190 °C and 2.16 kg	0.16	dg/min	ISO 1133
at 190 °C and 5 kg	0.89	dg/min	ISO 1133
at 190 °C and 21.6 kg	20	dg/min	ISO 1133
Density	945	kg/m³	ASTM D1505
MECHANICAL PROPERTIES			
Tensile test [1] [2]			
stress at yield	22	MPa	ISO 527-2
stress at break	31	MPa	ISO 527-2
strain at break	1000	%	ISO 527-2
tensile modulus	800	MPa	ISO 527-2
Flexural test			
Flexural modulus	850	MPa	ISO 178
Flexural strength	22	MPa	ISO 178
Izod impact notched			
at 23 °C	12	kJ/m²	ISO 180/A
at -30 °C	5	kJ/m²	ISO 180/A
Hardness Shore D	59	-	ISO 868
ESCR [3]	40	h	ASTM D1693
ESCR (Strain Hardening), Gp	23	MPa	ISO 18488
ESCR (10% Igepal CO-630), F50	150	h	ASTM D1693B
THERMAL PROPERTIES			
Heat deflection temperature [4] [5]			
at 0.45 MPa (HDT/B)	73	°C	ISO 75-2
Vicat Softening Temperature			
at 10 N (VST/A)	126	°C	ISO 306
DSC test			
melting point	130	°C	ISO 11357-3
enthalpy change	181	J/g	ISO 11357-3

(1) Speed of testing: 50 mm/min
(2) Test specimen according to ISO 527-2 type 1BA, thickness 2 mm
(3) Determined in Rhodacal-DS10 at 75 °C, 3 MPa, thickness 1 mm
(4) Compression moulding of test specimen according to ISO 1872-2
(5) Conditioning of test specimen: temp. 23 °C, relative humidity 50 %, 24 hours

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 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 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.