

## SABIC® HDPE PCG40053

### High density polyethylene for Healthcare

#### Description.

SABIC® HDPE grades for healthcare are produced under controlled conditions resulting in high product quality, consistency and a high level of purity.

SABIC® HDPE PCG40053 is designed for the injection moulding of healthcare packaging, caps and closures and other parts for medical packaging. This grade has a very high impact resistance, even at low temperatures, and excellent organoleptic properties.

#### Compliance to regulations.

SABIC® HDPE PCG40053 complies with the relevant monographs of the European Pharmacopoeia. The product mentioned herein may not be used for medical healthcare devices or materials intended for temporary or permanent implementation in the human body.

#### Typical data.

Revision 20100127

Properties	Units SI	Values	Test methods
<b>Polymer properties</b>			
<b>Melt flow rate (MFR)</b> at 190 °C and 2.16 kg	g/10 min	<b>4.7</b>	ISO 1133
at 190 °C and 5 kg	g/10 min	<b>13</b>	
<b>Melt volume rate (MVR)</b> at 190 °C and 2.16 kg	ml/10 min	<b>5.8</b>	ISO 1133
at 190 °C and 5 kg	ml/10 min	<b>17</b>	
<b>Density</b> <sup>1)</sup>	kg/m <sup>3</sup>	<b>953</b>	ISO 1183
<b>Mechanical properties</b> <sup>1) 2)</sup>			
<b>Tensile test</b> <sup>3) 4)</sup>			ISO 527-2
stress at yield	MPa	<b>26</b>	
stress at break	MPa	<b>25</b>	
strain at break	%	<b>&gt;200</b>	
tensile modulus	MPa	<b>1100</b>	
<b>Creep modulus</b> <sup>5) 6)</sup>			ISO 899
after 1 hour	MPa	<b>500</b>	
after 1000 hours	MPa	<b>225</b>	
<b>Izod impact notched</b>			ISO 180/A
at 23 °C	kJ/m <sup>2</sup>	<b>4</b>	
at -30 °C	kJ/m <sup>2</sup>	<b>4</b>	
<b>Hardness Shore D</b>	-	<b>61</b>	ISO 868
<b>ESCR</b> <sup>7)</sup>	h	<b>95</b>	SABIC method
<b>Thermal properties</b>			
<b>Heat deflection temperature</b> <sup>1) 2)</sup>			ISO 75-2
at 0.45 MPa (HDT/B)	°C	<b>81</b>	
<b>Vicat softening temperature</b> <sup>1) 2)</sup>			ISO 306
at 10 N (VST/A)	°C	<b>124</b>	
<b>DSC test</b>			DIN 53765
melting point	°C	<b>132</b>	
enthalpy change	J/g	<b>203</b>	

- 1) Compression moulding of test specimen according to ISO 1872-2
- 2) Conditioning of test specimen: temp. 23 °C, relative humidity 50 %, 24 hours
- 3) Speed of testing: 50 mm/min
- 4) Test specimen according to ISO 527-2 type 1BA, thickness 2 mm
- 5) Test specimen according to ISO 3167, thickness 4 mm
- 6) Determined at 23 °C, 3 MPa
- 7) Determined in Rhodacal-DS10 at 60 °C, 2 MPa, thickness 3 mm

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### High density polyethylene for Healthcare

**General information.** The SABIC® HDPE product range for healthcare is produced in a slurry process, using a Cr catalyst for blow moulding and extrusion or a Ziegler/Natta catalyst for injection moulding grades. The blow moulding grade is characterised by a broad molecular weight distribution, which ensures excellent behaviour during extrusion. The primary characteristic of the SABIC® HDPE injection moulding grades is a narrow molecular weight distribution, enabling the production of articles with high flow-path and wall-thickness ratios without the risk of warpage.

Additional characteristics are the high purity of the polymers, excellent stability during processing, a good intrinsic toughness and a good natural colour. These properties are directly linked with the unique production process of these materials.

**Health, Safety and Food Contact regulations.** Detailed information is provided in the relevant Material Safety Datasheet and or Standard Food Declaration, available on the Internet ([www.SABIC-europe.com](http://www.SABIC-europe.com)). Additional specific information can be requested via your local Sales Office.

**Quality.** SABIC Europe is fully certified in accordance with the internationally accepted quality standard ISO 9001-2000. It is SABIC Europe's policy to supply materials that meet customers specifications and needs and to keep up its reputation as a pre-eminent, reliable supplier of e.g. polyethylenes.

**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.

**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.

**Disclaimer.** The information contained herein may include typical properties of our products or their typical performances when used in certain typical applications. Actual properties of our products, in particular when used in conjunction with any third party material(s) or for any non-typical applications, may differ from typical properties.

It is the customer's responsibility to inspect and test our product(s) in order to satisfy itself as to the suitability of the product(s) for its and its customers particular purposes. The customer is responsible for the appropriate, safe and legal use, processing and handling of all product(s) purchased from us.

Nothing herein is intended to be nor shall it constitute a warranty whatsoever, in particular, warranty of merchantability or fitness for a particular purpose.

SABIC Europe as referred to herein means any legal entity belonging to the SABIC Europe group of companies.