

PRODUCT INFORMATION

New grade HDPE *Hostalen ACP 6541 A UV* for the caps production

Caps and closures sector – leader on the packaging market

Over the last two decades the production of caps to mineral waters and beverages made of polyolefin shown a two-digit increase and probably this trend will maintain in the nearest future.

Replacing a glass bottle with a bottle made of PET was the first of the factors stimulating a strong growth, as it entailed replacement of metal caps and crown caps with polyolefin caps.

Basell Polyolefins and its predecessors played an important part in a development of the cap and closure made of artificial materials. Currently Basell is the only polyolefin producer in Europe, which offers a wide range of grades of polyethylene and polypropylene for production of one-part and two-part caps. Basell also offers professional technical and research support for cap producers.

A development of the beverage and sparkling water market seems to be particularly promising in developing countries, what is related to frequent failure of water supply systems and problems with maintaining hygienic standards of the supplied water. In relation to a geographic location of most of developing countries, the resistance of the material and caps made of it to climatic conditions becomes particularly important. These requirements are fulfilled by the material *Hostalen* (HDPE) produced by Basell.



In the last few years, a constant and fast development of manufacturing of single-part polyethylene caps produced by press-formed technology, used in packaging sparkling mineral waters and beverages.

One-part construction of the cap provides for a possibility of connecting closing and sealing functions in just one element made in one production cycle.

Basell has been producing high density polyethylene *Hostalen GD 4755* for many years. This grade has gained wide appreciation among leading cap producers because of very high organoleptic and processing parameters.

Thanks to opening a new production installation of the polyethylene HDPE in the technology *Hostalen Advance Cascade Process*, Basell starts a production of a new grade of multimodal polyethylene of the newest generation *Hostalen ACP 6541 A UV*. This grade has been developed in close cooperation with a leading press-formed technology cap production machine maker – Italian-based Sacmi Imola company. The new *Hostalen ACP 6541 A UV* features perfect endurance properties, guarantees high reliability of the cap and easy processing, what makes the production profitable.

A distinguishing feature of the new grade *Hostalen ACP 6541 A UV* is high resistance to stress cracking (ESCR). This parameter is particularly important for beverage caps, where gas pressure can lead to cracking of a cap, especially under prolonged conditions of high temperature so typical for the summer season. The ESCR value for *Hostalen ACP 6541 A UV* is significantly higher than it is for grades of HDPE, currently used on the market. This grade also contains sliding agent making it easier to close bottles on the filling production lines and their easier opening by the consumer.

PRODUCT INFORMATION

Production tests have shown that the fluidity of the material exceeds the values typical for grades of polyethylene with the indicator MFR = 2, getting closed to the value typical for kinds with the indicator MFR = 8 – 10 used for caps of still water.

Therefore, also endurance parameters of these caps can be improved without a negative impact on the capacity of the production process.

Productions tests have also proven that it is possible to decrease the alloy temperature by about 40 Centigrade. Tests conducted on finished caps in the Sacmi Imola laboratory have shown also a lack of damages of a cap during a 35-day test with a temperature of 42 Centigrade.

The perfect ESCR value and an improved fluidity cause that the new *Hostalen ACP 6541 A UV* sets a new standard in the production of caps for beverages. A constant cooperation of the Basell company with Sacmi Imola guarantees that the producer receives material which perfectly meets his technological requirements.

The offer of Basell Polyolefins for cap and closure producers comprises also the grade HDPE *Purell ACP 6541 A*, which differs from the described grade *Hostalen* as it has not got the sliding agent. It can also be used for production of elastic tubes and medical packaging and articles. Technical parameters of both grades are given in the table below.

	<i>Purell ACP</i> 6541A	<i>Hostalen ACP</i> 6541A UV
Density, g/cm ³	0,952	0,952
MFR indicator, 2,16 kg, 190 °C dgmin ⁻¹	1,6	1,72
Stretching modul, Mpa	960	930
Tension at break, Mpa	22	22
Extension at break, %	10	10
FNCT (2.5MPa, 80°C, Arkopal), hrs	26	26
Hardness (Shore D)	55	55
Softening temperature Vicat (B50), °C	70	70
Charpy impact strength +23°C, kJm ⁻²	11	11
Charpy impact strength -30°C, kJm ⁻²	4,3	4,3

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