

Key trends and answers in the flexible packaging film industry

An overview of key trends driving the flexible packaging film industry might begin with the issue of food safety and freshness. The amount of available arable land is finite, yet global demand for food is growing. The agriculture industry must seek out the most efficient methods of getting more food to the table – faster and fresher than ever before. Polyolefins will maintain their principal role as the backbone of most packaging solutions because they can best safeguard the quality and shelf life of food, and can fulfil increasingly stringent regulatory and legislative requirements. What is more, polyolefins can help make enhanced functionalities possible, such as peelability, breathability, and sterilisability; they also boast high barrier and light blocking properties, and are microwavable.

As convenience continues to drive the industry, consumers want packaging that not only retains freshness, but is easy to open and reseal. Demand for long-life food products is also bolstering the trend towards retortable plastic packaging. Brand owners aim to differentiate their product from those of their competitors by way of aesthetically appealing packaging.

Another key driver is sustainability. In the true spirit of **EverMinds™**, Borealis is a frontrunner in helping to build a circular economy for plastics.

As brand owners respond to legislative and regulatory pressure by downgauging, design for recycling, increasing recycled content and reducing reliance on fossil-fuel based feedstocks, polyolefins play an essential role as enabler by making products lighter, recyclable, more climate friendly and eco- & cost efficient.

Borealis, together with its wholly-owned recycling subsidiaries, mtm plastics and Ecoplast, is an integral player in the industry working together along the value chain to accelerate the transformation from a linear to a circular economy.

Many packaging structures have traditionally used multi-material laminates which can be very difficult to recycle in mechanical recycling processes, while polyolefins (PE and PP) are an ideal material for designing flexible and rigid packaging that can be recycled.

Design for recycling shall deliver high-quality mono-material recycle streams which can then be incorporated into various next-step PE and PP structures.

The **Bornewables™** is a portfolio of circular polyolefin products, manufactured with second generation renewable feedstock, providing a carbon footprint reduction while offering equally high material performance.

Borcycle C™ is a portfolio of virgin-like polyolefins from chemically recycled post-consumer waste.

To learn more about how Borealis can help you create more sustainable solutions, please contact your Borealis representative.

Making everyday life easier | Date of issue: August 2022

About Borealis Borealis is one of the world's leading providers of advanced and circular polyolefin solutions and a European market leader in base chemicals, fertilizers and the mechanical recycling of plastics. We leverage our polymers expertise and decades of experience to offer value adding, innovative and circular material solutions for key industries. In re-inventing for more sustainable living, we build on our commitment to safety, our people and excellence as we accelerate the transformation to a circular economy and expand our geographical footprint.

With head offices in Vienna, Austria, Borealis employs 6,900 employees and operates in over 120 countries. In 2021, Borealis generated total sales and other income of EUR 10,153 million and a net profit of EUR 1,396 million. OMV, the Austria-based international oil and gas company, owns 75% of Borealis, while the remaining 25% is owned by a holding company of the Abu-Dhabi based Mubadala. We supply services and products to customers around the globe through Borealis and two important joint ventures: Borouge (with the Abu Dhabi National Oil Company, or ADNOC, based in UAE); and Baystar™ (with TotalEnergies, based in the US).

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FOR MORE INFORMATION:

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SUMMARY DATA SHEET

Solutions for PP Cast Film

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When linear
is limiting,
think circular.



Fully
Recyclable
and
Enhanced
Protection

Full PP laminate with
High Barrier Properties



Value chain partners

EverMinds™

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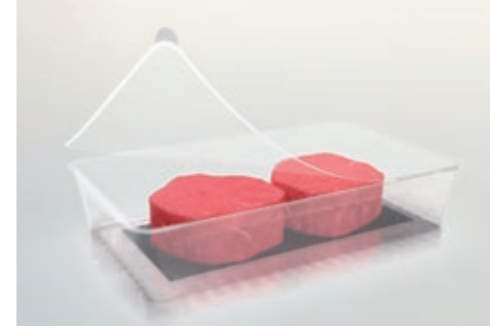
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 **WINDMÜLLER & HÖLSCHER**

 **GEA**

 **APPLIED MATERIALS**

Summary Data Sheet for PP Cast Film



| Product name | MFR 230°C/2.16 kg (g/10 min) | CR | Melting Temp. (°C) | Slip agent (ppm) | Antiblocking agent (ppm) | Antistatic agent | Ca. stearate | Flexural modulus ISO 178 (MPa) | Properties | Applications |
|--|------------------------------------|----|-----------------------|---------------------|-----------------------------|------------------|--------------|--------------------------------------|---|--|
| PP homopolymers | | | | | | | | | | |
| HD204CF | 8.0 | • | 162 | | | | | 1,350 | | |
| HD214CF | 8.0 | • | 162 | | 1,800 SiO ₂ | | • | 1,300 | Good optical properties | Stationery films |
| HD234CF | 8.0 | • | 162 | 2,000 EAA | 1,800 SiO ₂ | | • | 1,300 | High stiffness | Textile packaging |
| HD244CF | 8.0 | • | 162 | 2,000 OAA | | | • | 1,300 | Sterilisable | Flower packaging |
| HD601CF | 8.0 | | 162 | | | | | 1,400 | High heat resistance | Food packaging |
| | | | | | | | | | | General packaging |
| High crystalline PP homopolymers | | | | | | | | | | |
| HD905CF | 6.5 | | 167 | | | | | 2,250 | Very high stiffness and crystallinity | Twist, labelling and laminating films, hot fill |
| PP random copolymers | | | | | | | | | | |
| RD204CF | 8.0 | • | 150 | | | | | 1,000 | Very good optical properties | Lamination films, food packaging |
| RD234CF | 8.0 | • | 150 | 2,000 EAA | 1,800 SiO ₂ | | • | 1,000 | Sterilisable | Stationery films, textile and food packaging |
| RD364CF | 8.0 | • | 150 | 1,500 EAA | 1,800 SiO ₂ | • | • | 1,000 | High stiffness | Flower and bread packaging |
| RD226CF | 8.0 | • | 144 | 2,000 EAA/OAA | 1,800 SiO ₂ | | • | 800 | Good sealing | Lamination film for food and textile packaging, stationary films |
| RD366CF | 8.0 | • | 144 | 1,500 EAA | 1,800 SiO ₂ | • | • | 800 | High gloss | Lamination and metallisable film |
| RE216CF | 11.0 | • | 144 | | 1,800 SiO ₂ | | | 800 | Low haze | Textile, food and stationery films |
| RD208CF | 8.0 | • | 140 | | | | | 650 | Very good sealing characteristics | Lamination and metallisable film |
| RE239CF | 11.0 | • | 140 | 2,000 EAA | 1,800 SiO ₂ | | • | 650 | High mechanical strength | Soft packaging, stretch film, metallisable lamination film |
| | | | | | | | | | Soft, superior optical properties, high impact strength | Soft packaging, stretch film, metallisable lamination film |
| | | | | | | | | | Low seal initiation temperature, high softness and tenacity | Lamination film for food and general packaging |
| PP terpolymers | | | | | | | | | | |
| TD310BF | 6.0 | • | 130 | | 1,000 SiO ₂ | | | 700 | Excellent optical properties | Sealing layer in coextrusion for packaging film |
| TD312BF | 6.0 | | 130 | | 1,000 SiO ₂ | | • | 700 | Superior sealing properties | |
| TD315BF | 6.0 | • | 130 | 1,000 EAA | 1,000 SiO ₂ | | • | 700 | Very low SIT and high hot tack force | |
| PP heterophasic copolymers | | | | | | | | | | |
| BB213CF | 1.2 | | 164 | | | | • | 1,100 | High toughness, retortable | Lamination film, retortable stand up pouch for pet food and human food, low temperature applications |
| BC918CF | 3.0 | | 168 | | | | • | 1,400 | Best compromise between stiffness, transparency and impact properties, high heat resistance | Retortable stand up pouch for pet food, human food and label film |
| BD212CF | 5.0 | • | 164 | | | | • | 950 | High toughness, retortable | Lamination film for pouch applications, frozen food packaging, bread film, hygiene film |
| BD712CF | 7.0 | | 164 | | | | • | 1,100 | High toughness, retortable | Retortable and low temperature applications |
| BE170CF | 13.0 | | 164 | | | | • | 1,100 | High toughness, easy flow, matt surface | Surface protection film, furniture decoration |
| PP random/heterophasic copolymers | | | | | | | | | | |
| SD233CF | 7.0 | | 140 | | | | | 500 | High softness, high toughness, transparent | Soft films, stationery and furniture films |
| Specialities | | | | | | | | | | |
| WD255CF | 6.0 | | 110 – 140 | 1,100 EAA | 1,000 SiO ₂ | | • | 600 | Non-sterilisable seal-peel, soft peel force | |
| WD955CF | 7.0 | | 105 – 140 | 400 EAA | 360 SiO ₂ | | • | 650 | Non-sterilisable and transparent seal-peel, medium peel force | Coextruded sealing layer in a flexible or rigid peelable lid, can be sealed to PP and to itself |
| WD170CF | 6.5 | | 110 – 150 | | | | | 800 | Sterilisable seal-peel, medium peel force | |
| WE150CF | 12.5 | | 135 – 150 | 1,100 EAA | 1,000 SiO ₂ | | • | 1,000 | Sterilisable seal-peel, high peel force | |