



**Ravapura<sup>®</sup>**

**PCR Compounds**

# Ravapura® PCR-based Compounds

Ravapura is the latest brand from Ravago, encompassing a range of guaranteed post-use recycled compounds. Ravapura compounds combine carefully selected certified post-use or post-consumer recycled (PCR) materials with consistent, high quality in one single pellet. Customers can meet their sustainability targets whilst also benefiting from excellent processability, appearance, mechanical performance and finished product final specifications.

The Ravapura portfolio contains a range of polymer types that are used in a wide variety of markets and applications:

- LDPE
- HDPE
- PP
- ABS
- HIPS

## Recycling is in our DNA

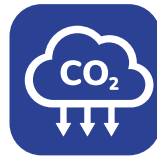
In 1961, when Raf Van Gorp founded Ravago, he pioneered the recycling of plastics through the development of treatment and formulation capabilities. From there, the company expanded to a global provider of plastic compounds, tailored to meet customer needs. It is this core skill of carefully selecting and combining the right recycled materials that allows us to consistently deliver our high performance Ravapura products.



## Why choose Ravapura® compounds?



Choose grades with a range of post-consumer recycled content from 30% up to 99%



Reduce your product carbon footprint by up to 93% compared to using virgin compounds.



Compounds are upcycled to meet required properties, such as with heat & UV resistance, or reinforcement options



Experience excellent processability and consistent mechanical properties



Ravapura products have several certifications and adhere to industry standards that ensure regulatory and quality compliance



We offer technical and application support to ensure you reach your performance requirements



Many grades can be self-colored or colored by us upon request



Ravapura compounds are produced locally in Europe

We are committed to developing Ravapura grades that exactly meet your needs, so please contact us to find out more about our latest developments and to see how we can work together.



### Need to calculate your carbon footprint?

We have the cradle-to-gate Product Carbon Footprints for all Ravapura grades available. Scan the QR code to contact us to find out more!

## Ravapura® LDPE

Ravapura LDPE combines excellent processing and consistent mechanical properties. It is most suitable for use in primary and secondary packaging applications.

### Features & benefits:

- Available in natural color
- Produces fully transparent films with low gel level and minimal odor
- Used in monolayer and multilayer films, both in skin and core layers
- Enables production of blown films as thin as 15 µm
- Options for tailor made compounds based on your specific needs
- Available with and without slip/antiblock package
- Allows you to meet plastic packaging tax requirements



Product Portfolio	Ravapura L70	Ravapura L7010	Ravapura L7020
PCR content	70%	70%	70%
Virgin polymer	LDPE	LDPE	LDPE
MFI (190°C / 2.16kg)	0.7 g/10 min	1.0 g/10 min	2.0 g/10 min
Density	0.92 g/cm <sup>3</sup>	0.92 g/cm <sup>3</sup>	0.92 g/cm <sup>3</sup>
Dart impact strength	90 g	90 g	-
Elmendorf tear MD/TD	100/450 g	100/450 g	-
Tensile strength at break MD/TD	18/20 MPa	18/20 MPa	-
Elongation at break MD/TD	300/550 %	300/550 %	-
Typical applications	Shrink film, packaging & protective films (non-food)		



## Case study: Ravapura C70 in secondary hygiene packaging

A customer was looking to increase post-consumer recycled content in their packaging whilst also making it suitable for recycling with a mono-material design.

Ravapura C70 provided the ideal solution for this application by offering:

- 70% LDPE PCR content
- Excellent sealability
- Reliable, virgin-like processability
- Low gel content
- Excellent surface printability
- Consistent batch-to-batch quality



Ravapura LDPE 7007	Ravapura LDPE 4560	Ravapura C70	Ravapura C7010
70%	45%	70%	70%
LDPE	LDPE	LLDPE	LLDPE
0.7 g/10 min	6.0 g/10 min	0.7 g/10 min	1.0 g/10 min
0.92 g/cm <sup>3</sup>	0.92 g/cm <sup>3</sup>	0.92 g/cm <sup>3</sup>	0.92 g/cm <sup>3</sup>
90 g	-	140 g	140 g
100/450 g	-	250/725 g	250/725 g
18/20 MPa	-	22/24 MPa	22/24 MPa
300/550 %	-	500/600 %	500/600 %
Foam extrusion	Closures, fasteners & blown film	Multilayer film, stretch film, packaging & protective films (non-food)	

# Ravapura® HDPE

Ravapura HDPE combines good processing with batch-to-batch mechanical property consistency. Our blow molding grades find use in a wide range of applications including non-food packaging, consumer goods and household goods. Applications for our injection molding grade include secondary packaging, industrial packaging and storage containers.

## Features & benefits:

- Available in natural, white and a selection of grey colors
- Process like virgin HDPE
- Excellent colorability
- Stress cracking optimization
- Produces items with consistent color, low gel level and minimal odor
- Options for tailor made compounds based on your specific needs

Product Portfolio	Ravapura HDPE 7525	Ravapura HDPE 5004	Ravapura HDPE 9504
Processing method	Blow molding	Injection molding	Injection molding
PCR content	75%	50%	95%
MFI (190°C / 2.16 kg)	0.25 g/10 min	4.0 g/10 min	4.0 g/10 min
Color	Natural, white & medium grey	Light & dark grey (RAL 7015)	Dark grey (RAL 7015)



Ravapura HDPE 7525  
Natural



Ravapura HDPE 7525  
White



Ravapura HDPE 7525  
Medium grey



Ravapura HDPE 5004  
Light grey



## Case study: Ravapura HDPE 7525 in blow molded containers

A customer wanted a PCR-based drop-in replacement for virgin HDPE to produce 5L containers for liquid cleaning products. The containers needed to have translucency, enabling the liquid to be seen through it, and also to look good on the shelf in stores.

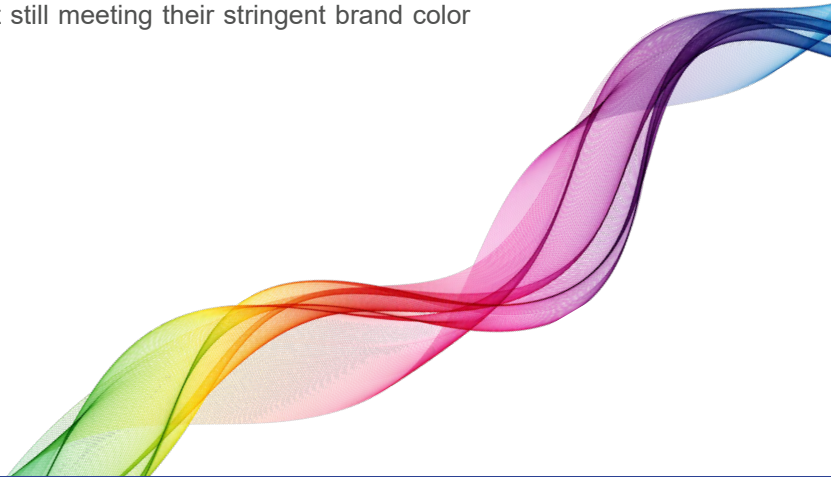
Ravapura HDPE 7525 was used successfully in this application to deliver:

- 75% HDPE PCR content (also suitable for blending with virgin HDPE)
- Easy drop-in processability
- Outstanding optics
- Low gel level
- Minimal odor



### Colorability

Following testing with Avient's color prediction tool, Ravapura HDPE 7525 natural was shown to be able to achieve **90%** of the same colors as a virgin HDPE natural material with 2% color masterbatch. This provides a great solution for brand owners who want to increase the post-consumer recycled content of their packaging whilst still meeting their stringent brand color requirements. Contact us to find out more.



# Ravapura® PP

Ravapura PP combines good processing with batch-to-batch mechanical property consistency. It can be used in applications such as non-food packaging, household goods and electrical & electronic equipment.

## Features & benefits:

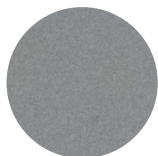
- Mineral and glass fiber filled options available
- UV stabilization possible
- Improved flow, impact and stiffness options
- Colorable and pre-colored grades available
- Options for tailor made compounds based on your specific needs

Product Portfolio	Ravapura PP 5020	Ravapura PP 5040	Ravapura PP 8030	Ravapura PP 9725
PCR content	50%	50%	80%	97%
MFI (230°C / 2.16kg)	20 g/10 min	40 g/10 min	30 g/10 min	25 g/10 min
Flexural modulus (23 °C)	1100 MPa	1100 MPa	1100 MPa	1200 MPa
Izod notched impact (23 °C)	8 kJ/m <sup>2</sup>	8 kJ/m <sup>2</sup>	7 kJ/m <sup>2</sup>	5 kJ/m <sup>2</sup>
Color	Medium grey* & light grey (RAL 7035)	Medium grey*	Dark grey (RAL 7011)	Black

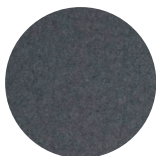
*\*Coloring available upon request with minimum order quantity, also suitable for self-coloring*

## Pre-colored grades

We offer ready-to-use grades in light and dark grey. The color specifications are available upon request.



Ravapura PP 5020  
Light grey  
RAL 7035



Ravapura PP 8030  
Dark grey  
RAL 7011



## Case study: Ravapura PP 9950 in liquid detergent dosing caps

A customer was looking to increase post-consumer recycled content in their liquid detergent dosing caps to align with the EU's Packaging & Packaging Waste Regulation (PPWR). The caps needed to meet brand owner color requirements, as well as providing good dimensional stability.

Ravapura PP 9950 was the ideal material choice, offering:

- 99% PP PCR content
- Good dimensional stability
- High stiffness balanced with good impact
- Brand colors achievable by self-coloring



### Ravapura PP 99XX series

99%

15 – 90 g/10 min

1250 – 1150 Mpa

6 – 4 kJ/m<sup>2</sup>

Light grey\*

### Colorable grades

No color is added to Ravapura PP 5020 or 5040 medium grey grades, or the 99XX series in light grey. We can develop colored grades for you upon request using our state-of-the-art color kitchen. Alternatively, you can self-color using your own masterbatch.



Examples of achievable colors with 2% MB



Examples of achievable colors with 3% MB

## Ravapura® PP | Impact Modified

A new range of impact modified grades has been added to the Ravapura PP portfolio. These products support injection molders and brand owners with increasing PCR content in more demanding applications where an improved balance of stiffness and impact is required. The range also includes a cold impact grade for when performance is needed in low temperature environments. Recommended applications include heavy-duty rigid packaging, tool cases and suitcases.

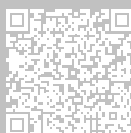
Product Portfolio	Ravapura PP 5504 HI	Ravapura PP 7018 CI	Ravapura PP 8518 HI
PCR content	55%	70%	85%
MFI (230°C / 2.16kg)	4 g/10 min	18 g/10 min	18 g/10 min
Flexural modulus (23 °C)	1400 MPa	850 MPa	1000 MPa
Izod notched impact (23 °C)	10 kJ/m <sup>2</sup>	45 kJ/m <sup>2</sup>	9 kJ/m <sup>2</sup>
Charpy notched impact (-20 °C)	-	7 kJ/m <sup>2</sup>	-
Color	Light grey	Light grey	Light grey



Looking for PCR PP for automotive applications?



Scan the QR code to contact us and find out more about the Ravapura PP range for automotive.



## Ravapura® PP | Filled

Ravapura PP filled grades have been specially developed for more demanding applications. They are recommended for outdoor applications where increased durability is needed, such as housings and brackets for gardening and leisure equipment.

Product Portfolio	Ravapura PP 4012 G15 UV	Ravapura PP 4512 T20 UV	Ravapura PP 4512 T20 HI UV
PCR content	40%	45%	45%
Filler & additives	15% glass fiber UV stabilized	20% talc UV stabilized	20% talc UV stabilized Impact modified
MFI (230°C / 2.16kg)	12 g/10 min	12 g/10 min	12 g/10 min
Flexural modulus (23 °C)	2540 MPa	2000 MPa	1940 MPa
Izod notched impact (23 °C)	12 kJ/m <sup>2</sup>	6.5 kJ/m <sup>2</sup>	20 kJ/m <sup>2</sup>
Color	Dark grey	Dark grey	Dark grey



### Case study: Ravapura PP 4512 T20 HI UV in a hose reel housing application

A customer wanted to replace virgin talc-filled PP with post-consumer recycled content in the injection molded housings of hose reels. As the hose reels are often wall-mounted outside and heavy, the material needed to meet challenging performance and aesthetic requirements.

Ravapura PP 4512 T20 HI UV was developed to meet these needs and bring:

- 45% PP PCR content
- 20% talc filled for high stiffness
- Impact modification to withstand mechanical testing
- UV stabilization to prevent outdoor ageing
- Excellent processability
- Color matching to meet brand owner requirements



# Ravapura® ABS

Ravapura ABS combines excellent processing and consistent mechanical properties. It is most suitable for use in aesthetic applications such as small and large appliances, electrical boxes, automotive interior parts and furniture.

## Features & benefits:

- Available in black and a selection of grey colors, as well as custom colors upon request
- High quality surface finish
- Further impact/stiffness optimization possibilities subject to application requirements

Product Portfolio	Ravapura ABS 3025	Ravapura ABS 5025	Ravapura ABS 7022
PCR content	30%	50%	70%
MFI (220°C / 10kg)	25 g/10 min	25 g/10 min	22 g/10 min
Izod notched impact (23 °C)	16 kJ/m <sup>2</sup>	16 kJ/m <sup>2</sup>	14 kJ/m <sup>2</sup>
Gloss	High	High	Medium
Color	White & bright colors	Deep blacks, dark & medium colors	Blacks & dark greys
UL listed	-	✓	-



RAL 9003



RAL 9010



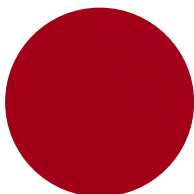
RAL 7040



RAL 7016



RAL 9016



Pantone 194C



RAL 7035



RAL 9005



## Case study: Ravapura ABS 5025 in smart-switch cover application

A company producing switches wanted to increase post-consumer recycled content whilst maintaining a great surface finish and still being able to offer a variety of color options in the market.

Ravapura ABS 5025 provided a solution by offering:

- 50% ABS PCR content
- Drop-in processing
- Good thermal properties
- Good impact resistance
- Enhanced surface aesthetics



## Ravapura® ABS for Automotive

The Ravapura ABS portfolio now also includes grades that have been specially designed for injection molded automotive interior applications. These grades enable incorporation of PCR content in automotive parts whilst ensuring excellent performance. They are available in dark grey and black that meet automotive OEM color requirements.

Product Portfolio	Ravapura ABS 3007HH	Ravapura ABS 3015MT	Ravapura ABS 3010HI
PCR content	30%	30%	30%
MFI (220°C / 10kg)	7 g/10 min	15 g/10 min	10 g/10 min
Heat resistance	High	Medium	Low
Izod notched impact (23 °C)	14 kJ/m <sup>2</sup>	14 kJ/m <sup>2</sup>	30 kJ/m <sup>2</sup>
Gloss	High	Low	High
Color	Dark grey, black	Dark grey, black	Dark grey, black



# Ravapura® HIPS

Ravapura HIPS compounds combine excellent processing and consistent mechanical properties. Typical applications include non-food packaging, household goods and electrical equipment applications.

## Features & benefits:

- Available in natural, white and grey, as well as custom colors upon request
- Excellent colorability
- Further impact/stiffness optimization possibilities subject to application requirements
- A specialized grade for E&E applications is available with superior aesthetic properties that conforms to the glow wire test standard (IEC 60695-2-12).

Product Portfolio	Ravapura PS 4007 GW	Ravapura PS 5008	Ravapura PS 5008 MI
PCR content	40%	50%	50%
MFI (200°C / 5kg)	7 g/10 min	8 g/10 min	8 g/10 min
Tensile modulus (23 °C)	2850 MPa	1900 MPa	2500 MPa
Izod notched impact (23 °C)	6 kJ/m <sup>2</sup>	9 kJ/m <sup>2</sup>	6.5 kJ/m <sup>2</sup>
Glow wire flammability index (2mm)	850	-	-
Colors	Grey	White & grey	Natural



Ravapura PS 5012  
White



Ravapura PS 5012  
White



Ravapura PS 5012  
Grey



## Case study: Ravapura PS 4007 GW in electrical power distribution box

A producer of electrical power distribution boxes wanted to find a drop-in solution to replace the virgin material they were using for the housing part with a post-consumer recycled alternative that could still meet light color requirements.

Ravapura PS 4007 GW offered the customer:

- 40% HIPS PCR content
- Improved flame retardancy & electrical properties
- Good impact resistance
- Enhanced surface aesthetics
- Compliance with IEC 60335-1:2020 for safety of electrical household appliances



Ravapura PS 5012	Ravapura PS 7010
50%	70%
12 g/10 min	10 g/10 min
2000 MPa	1950 MPa
8 kJ/m <sup>2</sup>	7 kJ/m <sup>2</sup>
-	-
White & grey	White & grey

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