





# The circular future is only possible together

At Braskem, we believe that the circular economy is the way to promote positive impact on the world and build a more sustainable future.

That is why Braskem created Wenen, its circularity ecosystem that helps to foster this new reality. A concept that was born to represent our work in favor of the circular economy and that identifies products, technologies, and initiatives focused on education and circular design promoted by Braskem.

We want to foster business and initiatives for post-consumer plastic waste valorization through partnerships with customers, brand owners, and the whole chemical and plastics value chain. After all, together we can make something new again and again.

**Get to know our circular solutions. Come with us!**



 Reducing plastic waste is part of Braskem's commitments to sustainable development.  
**Learn more.**

# How do we produce our circular solutions?

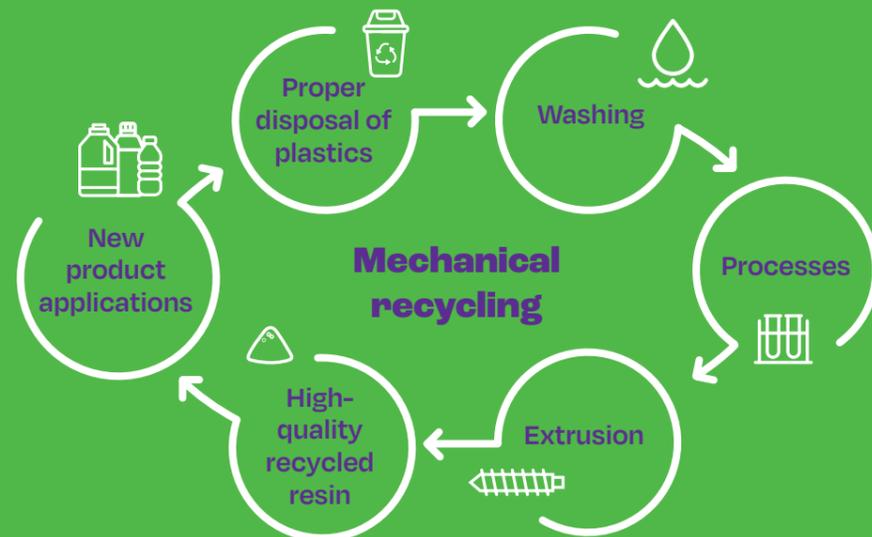
Braskem's circular products are the result of plastic waste recycling and recovery processes.

We invest in innovative recycling and waste recovery technologies because we want to go beyond this step by expanding the circular economy more and more. Get to know our Wenew portfolio!



## Mechanical recycling

The process of crushing post-consumer plastic into smaller pieces that, after going through the extrusion process, are transformed into recycled resins for the most diverse applications.



Check on the next pages Wenew's global portfolio of post-consumer recycled resins.

## Chemical Recycling

Process of breaking down post-consumption plastic molecules, with the alteration of its physical-chemical properties, to generate circular raw material used in the manufacturing of new chemicals or resins, with the same quality as the conventional ones and for the most diverse applications.

Braskem's units in Brazil, the United States and Europe have the ISCC Plus (International Sustainability and Carbon Certification) certification to produce chemicals and plastics from circular raw materials.



Braskem is investing in chemical recycling technology to soon make it a reality.

## Waste recovery

Process for recovering products derived from the manufacture of other Braskem solutions, generating maximum use of raw materials and reducing waste.

Check out Wenew's portfolio of circular chemicals on the following pages.

# Make the shift your company and the world need

When you use our circular solutions in your products,  
you are joining a new economy that is thriving and helping  
to transform the world.



# Wenew portfolio: get to know our circular solutions

## Resins with recycled content

A portfolio of recycled polyethylene (rPE), polypropylene (rPP) and polyvinyl chloride (rPVC) resins that unites high quality, performance, and sustainability.

### Reducing carbon footprint

Wenew resins portfolio reduces carbon emissions by **up to 48%** when compared to conventional virgin resins. Sustainability gains encompass 15 categories of environmental impacts, analyzed in a Life Cycle Assessment (LCA) study. The LCA tool is a key element in advancing the circular economy as it qualifies the impacts throughout the life of products, from raw material extraction to final disposal.

By using the Wenew portfolio, your company is contributing to a more circular future and participating in a collective effort to build a more sustainable world.

## Rigid

The concept of circular economy is increasingly present both in the design of rigid packaging and in its manufacturing process. Wenew's portfolio of resins for rigid products was developed to meet the needs of the most diverse markets, delivering quality, traceability, and safety, in line with the high technical requirements of the applications.



**60+**  
rPE, rPP and  
rPVC grades  
in the global  
portfolio

**New grades**  
under  
development

**Food-grade options**  
for packaging  
Commercialization in the  
United States and Mexico

**Carbon neutral and low carbon solutions**  
for blow molding, injection molding & extrusion  
Resins with post-consumer recycled and measurable renewable content

## Flexibles

The transition to a circular economy brings a new look to the development of packaging and the communication of brands with the consumer. This transformation encompasses the understanding of new materials and concepts, extending to the importance of proper waste disposal and the summation of forces to achieve plastic circularity. Wenew's portfolio of resins for flexible products collaborates to add value to brands by ensuring quality, differentiation, and more sustainability.



*Merely illustrative exemplary applications. The possibility of using this product for a specific purpose may change according to the country and should be analyzed by the interested party. Braskem does not guarantee the possibility of using the product with other materials for the desired application. Please check the RIS (Regulatory Information Sheet) or contact Braskem for specific regulatory information.*

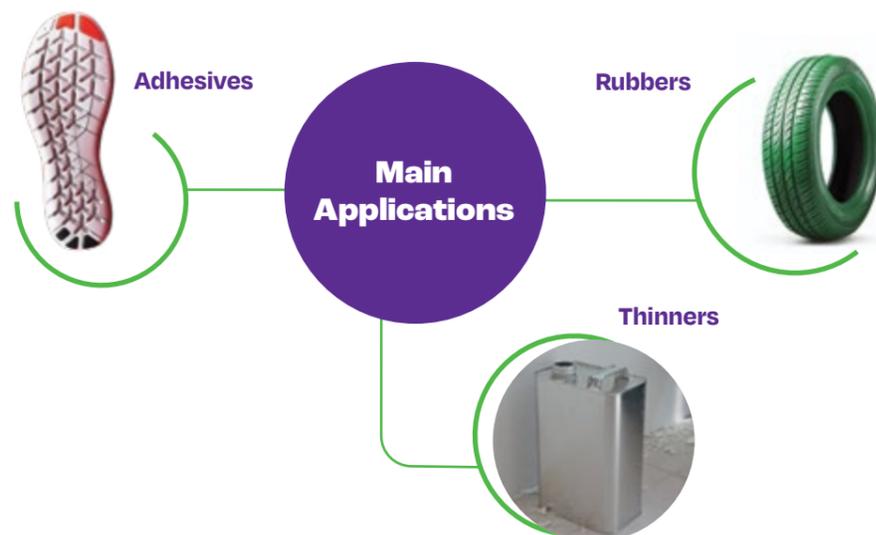
## Circular Chemicals

The Wenew chemicals portfolio has circular options developed from the manufacturing process of other Braskem products or from the chemical recycling process.



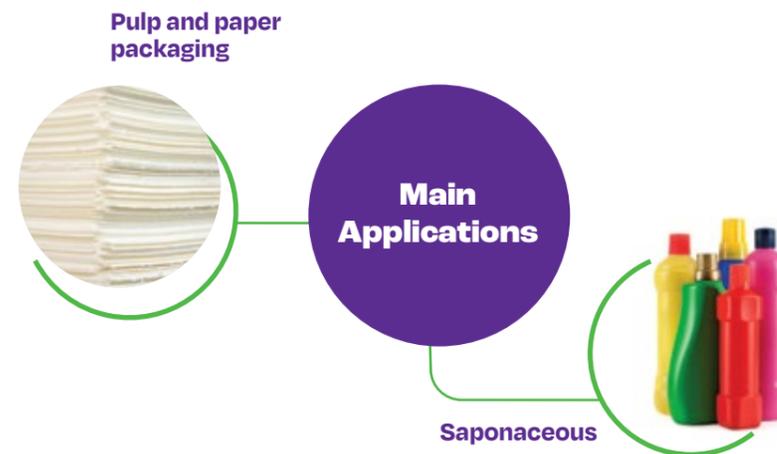
## Circular Hexane

The aliphatic hydrocarbon solvent is developed from the polyolefin production process. Besides going through strict quality controls and having a technical specification, Circular Hexane is treated before being sold. Braskem's first circular solvent, the product adds value to several applications due to its circular characteristic, which provides maximum use of raw materials while reducing waste in our production process.



## Circular Caustic Soda

Recycled alkaline solution, originating from the recycling of an aqueous gas washing solution. It is an excellent sustainable alternative for the chemical replacement process due to its high caustification efficiency and presence of sulfides.



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# Wenew Portfolio

Braskem has circular solutions available in all the regions where it operates. A diversified portfolio that is constantly growing, the result of research and development to meet the needs of a changing world and to collaborate with the sustainability goals of our customers and brand owners.



## Wenew Chemicals and Resins South America

### Polyethylene

	FAMILY	CODE	APPLICATION	COLOR	MFI 190 °C/2,16 kg (g/10 min)	MFI 190 °C/5,0 kg (g/10 min)	DENSITY (g/cm³)	PROCESSABILITY	DROP TEST	CHEMICAL RESISTANCE	SEALABILITY	TEAR RESISTANCE
Rigid	HDPE	DA054B	Blow molding/Extrusion	Black	0.30	-	0.955	**	***	**	-	-
	HDPE	DA055A	Blow molding/Extrusion	White/Off white	0.15	-	0.960	**	***	***	-	-
	HDPE	DA065A	Blow molding/Extrusion	White/Off white	0.15	-	0.960	**	***	***	-	-
	HDPE	DA065B	Blow molding/Extrusion	Black	0.15	-	0.960	**	***	***	-	-
	HDPE	DAR001A	Pipes/Extrusion	Black	-	0.55	0.955	***	-	***	-	-
	LLDPE	DL085C	Tubular Film	Natural	2.4	-	0.921	**	-	-	***	**
Flexible	LLDPE	DL085D	Tubular Film/FLAT	Natural	2.5	-	0.918	***	-	-	***	***
	LDPE	RPL4C2BL	Stretch/Coil (Tubular Film)	Blue/Translucent	1.5	-	0.925	**	-	-	***	**
	LDPE	RPL4C5WE	Stretch/Coil (Tubular Film)	White	1.5	-	0.925	**	-	-	***	**
	HDPE	RPR5C2BK	Garbage Bags	Black	0.8	-	0.955	**	-	-	**	**
	LLDPE	DLR002A	Stretch Hood	Natural	2.0	-	0.923	**	-	-	***	***
	HDPE	RPR5C4BK	Injection Molding - Caps & Closures	Black	1.5	-	0.955	**	**	**	-	-

# Wenew Chemicals and Resins South America

## Polypropylene

	FAMILY	CODE	APPLICATION	COLOR	MFI 230 °C/2,16 kg (g/10 min)	PROCESSABILITY	STIFFNESS	DROP TEST
Rigid	PP HOMO	RPH0J7BK	Injection Molding	Black	10	**	***	*
	PP HECO	RPH6N3BK	Injection Molding	Black	24	***	**	**
	PP HOMO	DP237B	Injection Molding	Black	12	**	***	*
	PP HECO	DP237C	Injection Molding	Black	13	**	**	***
	PP HECO	DP237D	Injection Molding	White/Off white	24	***	**	**
	PP HOMO	DP237E	Injection Molding	White/Off white	12	**	***	*
	PP HECO	DP237F	Injection Molding	White/Off white	13	**	**	***
	PP HOMO	RPH0J7WE	Injection Molding	White/Off white	10	**	***	**
	PP HOMO	RPH4J7WE	Injection Molding	White/Off white	10	**	***	*
	PP HOMO	RPH4H5SU	Injection Molding	Suede	7.5	**	***	*
PP HOMO	DP241	Raffia	Grey	6.5	***	-	-	

## Polyvinyl Chloride

	FAMILY	CODE	APPLICATION	COLOR	MOISTURE CONTENT	PARTICLES > 20 MESH	IRON PARTICLES	SHORE A HARDNESS
Rigid	PVC	COMP PVC PCR RIG 1	Construction - Profiles, flooring, etc.	Standard	< 0.5%	≤ 0.1%	Absent	-
Flexible	PVC	COMP PVC PCR FLX 1	Flexible products - shoes, laminates, hoses, etc.	Grey	< 0.5%	-	-	> 85

## Caustic Circular

RELATIVE DENSITY (g/l)	PH	BOILING POINT (°C)	MELTING POINT (°C)
1	14	100	-5

## Circular Hexane Aliphatic Hydrocarbons

RELATIVE EVAPORATION RATE (BUTYL ACETATE = 100)	HANSEN SOLUBILITY PARAMETERS ((J/cm <sup>3</sup> ) <sup>1/2</sup> )			SOLUBILITY (% mass) at 20°C		FLASH POINT (°C) CLOSED CUP	DISTILLATION RANGE AT 760 mmHg (°C)	DENSITY (20/20 °C)
	δD	δP	δH	SOLVENT IN WATER	WATER IN SOLVENT			
830	14.9	0.0	0.0	IMMISCIBLE	IMMISCIBLE	-26.0	58 - 80	0,670

# Wenew Chemicals and Resins North America

## Polyethylene

	FAMILY	CODE	APPLICATION	COLOR	MFI 190 °C/2,16 kg (g/10 min)	DENSITY (g/cm³)	PROCESSABILITY	STIFFNESS	DROP TEST	CHEMICAL RESISTANCE	SEALABILITY	TEAR RESISTANCE	FOOD CONTACT
Rigid	HDPE	RPR3A1NL	Blow molding/Extrusion	Natural	0.38	0.955	***	***	***	***	-	-	Expected Jun/23
	HDPE	RPR5A1WE	Blow molding/Extrusion	Natural	0.40	0.955	***	***	***	***	-	-	Expected Jun/23
	HDPE	RPR7A1NL	Blow molding/Extrusion	Natural	0.18	0.955	***	***	***	***	-	-	Expected Jun/23
	HDPE	RPROA2NL	Blow molding/Extrusion	Natural	0.5	0.957	***	**	**	**	-	-	Expected Jun/23
	HDPE	RPROA2WE	Blow molding/Extrusion	White	0.44	0.963	***	**	**	**	-	-	No
	HDPE	RPROA2GN	Blow molding/Extrusion	Green	0.44	0.963	***	**	**	**	-	-	No
	HDPE	RPROA2BL	Blow molding/Extrusion	Blue	0.44	0.963	***	**	**	**	-	-	No
	HDPE	RPROA2RD	Blow molding/Extrusion	Red	0.44	0.963	***	**	**	**	-	-	No
	HDPE	RPROA2GY	Pipes/Blow molding/Extrusion	Dark Gray	0.47	0.959	***	**	**	**	-	-	No
	HDPE	RPROA2BE	Pipes/Blow molding (big volume)	Dark Blue	0.5	0.950	***	**	**	**	-	-	No
Flexible	HDPE	RPR3G2WE	Injection Molding	White	5	0.957	***	**	-	**	-	-	No
	LDPE	RPL5A1NL	Film Extrusion	Natural	0.6	0.921	**	-	-	-	***	**	No
	LDPE	RPL5C1NL	Film Extrusion	Natural	1.85	0.921	**	-	-	-	***	**	No
	LDPE	RPLOC2NL	Film Extrusion	Natural	1.25	0.927	**	-	-	-	***	**	No

## Polypropylene

	FAMILY	CODE	APPLICATION	COLOR	MFI 230 °C/2,16 kg (g/10 min)	PROCESSABILITY	STIFFNESS	DROP TEST	DIMENSIONAL STABILITY	FOOD CONTACT
Flexible	PP HECO	DPR112	Thermoforming	Dark Gray	3	-	-	-	-	This product meets the requirements for certain FDA Food Contact Applications
	PP HECO	DPR117	Injection Molding - Caps & Closures	Dark Gray	16	-	-	-	-	This product meets the requirements for certain FDA Food Contact Applications
	PP HECO	DPR103	Injection Molding - Caps & Closures	Gray	22	-	-	-	-	No
	PP HECO	DPR101	Extrusion	Gray	3	-	-	-	-	No
	PP HECO	RPIOR2BK	Compounding - Auto/ Industrial	Black	35	-	-	-	-	No
	PP HECO	RPIOR2GY	Compounding - Auto/ Industrial	Gray	35	-	-	-	-	No
	PP HOMO	RPH9H2BK	Compounding - Auto/ Industrial	Black	6	-	-	-	-	No
	PP HOMO	RPHOE1NL	Blow molding/Thermoforming/Cast Film	Natural	2.5	***	**	-	***	Expected Jun/23
	PP HOMO	RPI008	Injection - Caps & Closures	Natural	8	**	**	-	***	Expected Jun/23

# Wenew Chemicals and Resins Europe

## Polyethylene

	FAMILY	CODE	APPLICATION	COLOR	MFI 190 °C/2,16 kg (g/10 min)	DENSITY (g/cm³)	PROCESSABILITY	STIFFNESS	DROP TEST	CHEMICAL RESISTANCE	SEALABILITY	TEAR RESISTANCE	FOOD CONTACT
Rigid	HDPE	RDH001A	Extrusion/Extrusion Blow Molding	Green	0.8	> 0.945	**	**	-	-	-	-	NO
	HDPE	DA070D	Extrusion/Blow Molding	Olive green	0.3	> 0.945	***	**	-	-	-	-	NO
	HDPE	DA072D	Extrusion/Blow Molding	Olive green	0.3	> 0.945	***	**	-	-	-	-	NO
	HDPE	RDH002A	Extrusion/Blow Molding	Natural	0.5	> 0.945	***	***	-	-	-	-	NO
	HDPE	RDH003A	Extrusion/Blow Molding	White	0.5	> 0.945	***	***	-	-	-	-	NO
	HDPE	RDH004A	Extrusion/Blow Molding	Light grey	0.3	> 0.945	***	***	-	-	-	-	NO
	HDPE	RDH005A	Extrusion/Blow Molding	Natural	0.4	> 0.945	***	***	-	-	-	-	NO
	HDPE	RDH008A	Injection molding	Red	8	> 0.945	***	***	-	-	-	-	NO
	HDPE	RDH009A	Injection molding	Grey	5	> 0.945	**	**	-	-	-	-	NO
	HDPE	DA080A	Injection molding	Green	4	> 0.945	**	***	-	-	-	-	NO
HDPE	DA079A	Injection molding	Green	2.5	> 0.945	**	**	-	-	-	-	NO	
Flexible	LLDPE	RDL001A	Film extrusion	Amber	1.2	< 0.940	**	-	-	-	***	**	NO
	LLDPE	RPL0C2WE	Film extrusion	White	0.6	< 0.940	***	-	-	-	***	***	NO
	LLDPE	RGL5C2WE	Film extrusion	White	0.8	< 0.940	***	-	-	-	***	***	NO
	LLDPE	RDL004A	Film extrusion	Natural	0.6	< 0.940	***	-	-	-	***	**	NO

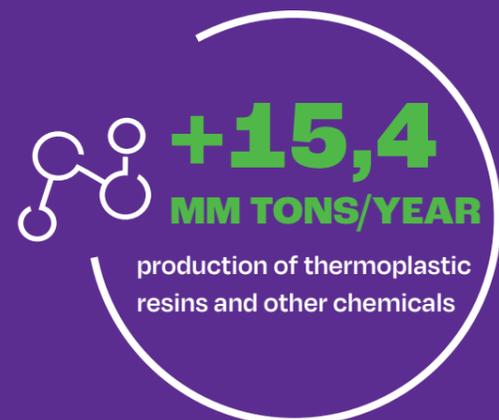
## Polypropylene

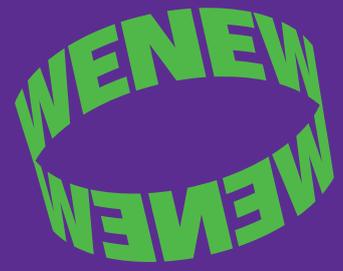
	FAMILY	CODE	APPLICATION	COLOR	MFI 230 °C/2,16 kg (g/10 min)	PROCESSABILITY	STIFFNESS	DROP TEST	DIMENSIONAL STABILITY	FOOD CONTACT
Rigid	PP HOMO	DP249A	Extrusion, thermoforming and Injection molding	Green	3.5	**	**	***	-	NO
	PP HECO	DP234A	Injection molding	Grey	40	***	**	***	-	NO
	PP HECO	DP234B	Injection molding	Anthracite	40	***	**	***	-	NO
	PP HECO	DP235A	Injection molding	Grey	12	***	***	**	-	NO

# Braskem: Global presence

With a global, human-oriented vision of the future, Braskem strives every day to improve people's lives by creating sustainable solutions in chemistry and plastics. Braskem is the largest producer of thermoplastic resins in the Americas and a global leader in the production of biopolymers on an industrial scale.

For more information, visit [www.braskem.com](http://www.braskem.com).





The transition to the circular economy has already begun. Let's be part of this journey together?

**Talk to our team!**