

# Setting the new standard in EVA and EBA

At Repsol we innovate constantly to offer you one of the widest ranges of ethylene copolymers in the market





### Primeva 🗸

#### Multiplying our **EVA** solutions

#### Trust

Developing products to meet our clients' needs and supplying on a regular basis across Europe.

Safety Reducion residual VA conten

#### Innovation

One of the largest portfolios in the industry, complying with the highest European certifications.



## Unique added value of **EBA** copolymers to boost your business through

#### Versatility

Our production process enables us to continuously increase our portfolio according to our clients' needs.

#### Unique attributes

Its thermal stability, flexibility and transparency make it suitable for film applications.

Excellent processing and adhesion properties to meet the requirements of cables and adhesive markets.

Reducing residual VA content beyond European Legislation.

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## Working for a more sustainable future

At Repsol, we believe in the circular economy, and we run specific projects that minimize the environmental impact of our materials. To this end, we are committed to making our industrial processes increasingly efficient and reducing the carbon footprint of our polymers.

We have a **specialized circular economy department** dedicated to recycling post-consumer materials to drive development of new materials offering solutions based on innovative polyolefins with recycled content.

We **use recycled plastics in critical applications**, creating new markets for plastic waste and driving circularity by giving that waste a new use. As a result, we offer a wide range of polyolefins with recycled content that deliver excellent engineering performance certified under UNE–EN 15343.

We have circular polyolefins obtained by incorporating pyrolysis oil, from chemically recycled plastic waste not suitable for mechanical recycling, together with virgin feedstock into our petrochemical process, reducing the consumption of non-renewable resources.



Commited to Net Zero Emissions These circular polyolefins have the same properties and quality as virgin material and hold Food Contact Approval. We have obtained ISCC PLUS certification for circular and traceable polyolefins that use plastic waste as raw material. Moreover, our wide range of polyolefins is 100% recyclable.

Our ambition is to **recycle by 2030 the equivalent of 20% of the polyolefins we produce** to support, in conjunction with the other initiatives in Repsol's circular economy strategy, the goal we announced in December 2019: to reach net zero emissions by 2050.

To contribute to the company's emissions neutrality goal, **our chemicals business has launched its 3030 Plan, intended to cut our carbon intensity by 30% by 2030**.

Advancing the circular economy and lowering carbon intensity in our chemicals business will contribute towards transforming Repsol's industrial operations, as well as **developing high-value-added raw materials, making it possible to manufacture an infinite number of products that improve human well-being, safety, and quality of life** while enhancing the environment.



### Repsol. A global multi-energy company

#### With over 8 decades of experience

It is leading the energy transition with its ambition of achieving zero net emissions by 2050.

Present throughout the energy value chain, the company employs 24,000 people worldwide and distributes its products in nearly 100 countries. Its customer-focused product and services portfolio meets all consumer needs of around 24 million customers, whether at home or on the move.

Repsol Campus, Corporate Headquarters in Madrid LEED® Platinum certificate, awarded by the prestigious U.S. Green Building Council (USGBC), for new buildings construction





## Chemicals

### Repsol manufactures a wide variety of products, ranging from base petrochemicals to derivatives

Base petrochemic and benzene.

**Intermediate products:** styrene, propylene oxide, polyether polyols, and propylene glycols.

**Polyolefins:** polypropylene (PP) and PP compounds, both high and low density polyethylene (HDPE and LDPE), metallocene linear low density polyethylene (mLLDPE), ethylene vinyl acetate (EVA) and ethylene butyl acrylate (EBA) copolymers.

#### Over 100 scientists and researchers working for you

Including qualified Stewardship.

Repsol's commitment to R&D is an evidence of the company's aim to attain business excellence to meet future horizons.

#### Added value

Repsol's Chemicals Division, with a high degree of integration, focuses its strategy on the constant generation of value through differentiated products and services.

Base petrochemicals: ethylene, propylene, butadiene,

Including qualified personnel specialized on Product

## Understanding your needs

At Repsol we are committed with the development of new products for our clients. We are in constant search of innovative solutions to meet all your needs. Our goal is to develop cutting-edge products to offer reliable and quality solutions to enhance your business.

Due to this vision Repsol displays one of the widest ranges of EVA & EBA copolymers in the market.

#### Over 45 years of experience in the market

During our 45 years of experience, we have developed an integrated chemical business. This way at Repsol we control all key factors of the value chain: research, development, manufacturing, and distribution.

But we know providing quality products is not enough. Ensuring availability and supply is also fundamental to run any business.

Therefore, Repsol is the partner you can trust when it comes to quality, flexibility and safety.

#### Over 50 grades EVA & EBA copolymers

Our versatility allows us to produce one of the most extensive ranges of copolymers in the market for a wide range of industrial sectors like:









 $\frac{1}{2}$ 

Packaging







Househol



Automotive

& consumer products

Buildina & infrastructure

Healthcare





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## Two solutions. Countless advantages





- Increasing product portfolio and production capacity.
- Surpassing all European quality standards.
- In compliance with new the European food contact & safety regulations.
- Reducing residual VA content beyond European legislation.
- Building trust through guaranteed supply across Europe.
- Constant development of new products and properties.





### Ebantix 🕅

- Our product manufacturing versatility allows us to develop a wide range of high quality grades.
- EBA copolymers offer numerous advantages in the agricultural film sector, where Repsol has more than 70 years of experience.
- EBA copolymers offer excellent thermal stability recommended for high demanding applications.
- All products meet the highest quality standards and new food contact requirements.
- Constant product innovation to meet our clients' needs.

- Two complementary ranges of copolymers.
- High quality products surpassing all European Standards.
- High consistency.
- High fluidity grades.

- Constant product innovation.
- Research of new applications.
- Strong customer service orientation.
- An integrated chemical company, a reliable supplier.





### **Applications**

Hot melt adhesives High compatibility with a broad range of resins and waxes.

#### Film / Sheets

Great mechanical and optical properties with good adhesion to several substrates (PE, PET, etc.).

#### Foams

Excellent performance in terms of abrasion resistance, elasticity, density, and chemical resistance. They can be easily colored.

#### Cables

High filler loading with good dispersion, along with excellent processing and high cross-linking efficiency.

#### Solar

Good optical transmission of light and adhesion to glass and backsheet materials.

#### Bitumen modification

Excellent performance in asphalts and high compatibility with a wide range of bitumen.



#### Inks

Good adherence and cohesion in gravure inks production, in addition to a good final appearance. Also soluble in aromatic solvents.

#### Coatings

Good adhesion to several substrates in addition to an easy processing and good optical properties.

#### Soundproofing

High filler acceptance and dispersion ideal for the production of high load compounds used in automobile industry.



#### Number of Repsol Primeva® grades by applications



#### Primeva<sup>®</sup> grade table based on melt flow index (MFI) and vinyl acetate content (%VA)







Grade	VA	MFI	Melting temperature	Density	Vicat temperature	Ring-ball temperature	Hardness shore A/D	Hot melt adhesives	Film, sheets	Foams	Cables	Solar	Bitumen modification	Inks	Coatings	Soundproofing
	[%] Internal method FTIR	g/10 min ISO 1133	℃ Internal method (DSC)	kg/m³ ISO 1183	°C ISO 306	°C ASTM E-28	ISO 868									
P0720C	7.5	2	103	926	80	-	- / 46			•						•
P0720F	7.5	2	103	926	80	-	- / 46		•	•						•
P1340	12.5	4	97	931	72	-	-/41		•	•						•
P1807C	18	0.7	87	941	62	-	- / 33		•		•					•
P1807F	18	0.7	87	941	62	-	- / 33		•		•					
P1820	18	2	87	937	64	-	90 / 38			•						•
P1820C	18	2	87	937	64	-	90 / 38			•	•					
P1820F	18	2	87	937	64	-	90 / 38		•		•					
P18010	18	10	89	937	59	-	90 / 36			•						•
P18010C	18	10	89	937	59	-	90 / 36		•	•	•					
P1550M	15	*	90	937	-	101	88 / -	•					•			
P18150	18	150	81	937	53	100	83 / 30	•								
P18500	18	500	84	937	53	89	83 /32	•					•			
P20020	20	20	82	940	53	123	84 / 30						•			

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Bitumen modification Inks	Coatings	Soundproofing
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\* Viscosity = 5,000 cP (190°C)



Grade	VA	MFI	Melting temperature	Density	Vicat temperature	Ring-ball temperature	Hardness shore A/D	Hot melt adhesives	Film, sheets	Foams	Cables	Solar	Bitumen modification	Inks	Coatings	Soundproofing
	[%] Internal method FTIR	g/10 min ISO 1133	°C Internal method (DSC)	kg/m³ ISO 1183	°C ISO 306	°C ASTM E-28	ISO 868									
P20020D	20	20	82	940	53	123	84 / 30								•	
P2430	24	3	77	944	-	162	79 / 29	•		•						•
P2430C	24	3	77	944	-	162	79 / 29		•	•	•					
P2735	27	3.5	73	953	-	152	81/-			•						
P2735C	27	3.5	73	953	-	152	81/-	•		•	•					
P2870	28	7	71	950	-	142	80 / 28	•		•			•			
P2870C	28	7	71	950	-	142	80 / 28	•			•					
P28025	28	25	70	950	-	120	78 / 26	•					•	•		







Grade	VA	MFI	Melting temperature	Density	Vicat temperature	Ring-ball temperature	Hardness shore A/D	Hot melt adhesives	Film, sheets	Foams	Cables	Solar
	[%] Internal method FTIR	g/10 min ISO 1133	°C Internal method (DSC)	kg/m³ ISO 1183	°C ISO 306	°C ASTM E-28	ISO 868					
P28025S	28	25	70	950	-	120	78 / 26	•				•
P28045	28	45	69	950	-	111	76 / -	•				
P28150	28	150	67	950	-	89	74 / -	•				
P28400	28	400	68	950	-	85	71 / -	•				
P28800	28	800	69	946	-	85	69 / -	•				
P2850M	28	*	68	951	-	82	71 / -	•				
P2836M	28	**	68	946	-	81	64 / -	•				
P33015	33	15	61	956	-	127	75 / -				•	
P33015C	33	15	61	956	-	127	75 / -				•	
P33025	33	25	61	956	-	118	74 / -	•			•	
P33025C	33	25	61	956	-	119	75 / -	•			•	
P33045	33	45	59	956	-	112	73 / -	•				
P33045S	33	45	59	956	-	112	73 / -					•
P33400	33	400	61	957	-	78	55 / -	•				
P40055	40	55	49	969	-	107	51/-	•			•	



Bitumen modification	Inks	Coatings	Soundproofing
	•		
	* Viscosity	= 5,000 cP (190°C)	** Viscosity = 3,600 cP (190°C)



### **Applications**

#### Hot melt adhesives

The high resistance against thermal degradation of Ebantix® EBA copolymers, added to their high compatibility with a broad range of resins and waxes, make them suitable for hot melt adhesive production. Ebantix<sup>®</sup> EBA copolymers maintain excellent mechanical properties even at below zero temperatures.

#### Film / Sheets

Ebantix® EBA copolymers are widely used in industrial and agricultural films production as well as in stretch films and stretch hoods, due to their good mechanical properties and their excellent optical properties. They show good adhesion to several substrates (PE, PET, etc.); therefore they are suitable for multilayer films extrusion.

#### Foams

Ebantix® EBA copolymers based microcellular foams show high flexibility and low shrinkage, as well as an excellent performance in terms of abrasion and chemical resistance. They can be easily colored.

#### Number of Repsol Ebantix<sup>®</sup> grades by applications



#### Cables

Ebantix® EBA copolymers allow high filler loading with good dispersion, along with excellent processing and high cross-linking efficiency. These characteristics make them especially suitable for HFFR and semiconductive compounds production for wire and cables.

#### Coatings

Ebantix<sup>®</sup> EBA copolymers show good adhesion to several substrates in addition to an easy processing and good optical properties. Therefore they are excellent for their use in extrusion coating processes.









Chart of Ebantix<sup>®</sup> grades according to their Melt Flow Index (MFI) and Butyl Acrylate content (% BA)







Grade	BA	MFI	Melting temperature	Density	Vicat temperature	Ring-ball temperature	Hardness shore A/D	Hot melt adhesives
	[%] Internal method FTIR	g/10 min ISO 1133	°C Internal method (DSC)	kg/m³ ISO 1183	°C ISO 306	°C ASTM E-28	ISO 868	
E303	3	0.3	110	923	92	-	- / 46	
E803C	8	0.3	106	924	87	-	- / 43	
E1240	12	4	100	925	73	-	91 / 38	
E1303	13	0.3	101	925	79	-	94 / 39	
E1704	17	0.4	96	925	70	-	- / 36	
E1715	17	1.5	95	926	68	-	90 / 31	
E1770	17	7	93	924	61	-	90 / 33	
E20020	20	20	89	925	52	-	87 / 30	
E27150	27	150	76	925	-	100	76 / -	•
E2735	27	3.5	80	927	42	-	90 / 20	
E2735C	27	3.5	80	927	42	-	90 / 20	
E2770	27	7	82	926	41	-	- / 20	
E2770C	27	7	82	926	41	-	- / 20	
E33040	33	40	69	925	44	114	68 / -	•
E33150	33	150	64	924	-	90	60 / -	•





## Safety and quality are our priority

Excellence is intrinsic to Repsol's values. It infuses our daily work and helps guide our decisions and actions, contributing to achieve the commitment made to our customers, stakeholders, employees, suppliers / partners, and society to build a better future.

Petrochemical complexes and logistics centers all have ISO 45001. **We are food safety leaders**. All our facilities are FSSC 22000 certified in recognition of our food safety risk management processes throughout the supply chain.

Technical Data Sheets and MSDS are available on: www.repsol.com

All petrochemical plants are compliant with the current ISO 9001 standards, for the quality of processes from manufacture to distribution, transport management and end product warehousing.

In February 2019 we obtained the ISCC PLUS certification in all our polyolefin production centers. **We are one of the leading companies in the production of circular polyolefins that use recycled plastic waste as raw material**, and this certification is an example of our commitment to promote the Circular Economy of our materials.

#### Certifications

Petrochemical plants, plants and logistics	All industrial complex	Puertollano, Tarragona and Monzón plants	Puertollano and Monzón plants	Puertollano, Tarragona and Sines		
ISO 45001	All petrochemical plants	IATF 16949	UNE–EN 15343	ISO 50001 ISO 14001 ISO 14064		
	ISO 9001 ISCC Plus			ISO 14064		





## Environment

#### We offer sustainable solutions for our clients: 100% recyclable polyolefins.

We have set up and deployed an ambitious CO, program reduction that pursues a 40% reduction in SCOPE 1 & 2 emissions by 2030 (2017 as reference year) and zero emissions before 2050. Energy efficiency programs to reduce energy consumption and GHG emissions are one of the key elements of our strategy in the short term, followed by deep process electrification and CCUS. Biofeedstocks and renewable electricity will have a relevant role in this transition.

These programs pursue long-term targets made public to facilitate their progress by the stakeholders. In this sense, Repsol Química is committed to a reduction of 0.26 million tons per year of GHG emissions in the 2021-2025 Strategic Plan and a 1.3 million tons per year reduction until 2030 with a roadmap to be a net-zero company before 2050.

Regarding SCOPE 3 emissions, Repsol Química will contribute to the CO<sub>2</sub> emissions reduction at the plastics' end of life with our circularity projects.

All petrochemical complexes have ISO 14001 certification for their environmental management and the reduction of the impact of their facilities, and ISO 14064 for the annual verification of greenhouse gas (GHG) emissions. In addition, the chemical area of our complexes in Tarragona (2015), Puertollano (2013), and Sines (2016) has implemented an Energy Management System according to the requirements indicated in the International Standard ISO 50001. This system is dedicated to developing and implementing our organization's energy policy and managing the energy aspects of our activities, products, or services. The objective is to increase and improve our energy efficiency based on systems implementation aimed at continuous energy performance improvement, thus contributing to more efficient and sustainable energy use.

Repsol Química has released on a yearly frequency the carbon footprint of all its product families since 2020, considering the "cradle to gate" scope based on ISO 14067.

Repsol's purpose is to become a net-zero emissions company by 2050, and our 2021-2025 Strategic Plan enables us to continue successfully advancing our multi-energy commitment.

Collaboration

llaboration Results orientation Inspiring leadership Intrapreneurship Accountability

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#### **Chemicals Customer Care**

Spain

Tel.: 900 10 32 39 Tel.: +34 91 753 18 01

Portugal

Tel.: 800 60 501 111 Tel.: +34 91 753 18 05

France

Tel.: 800 60 503 333 Tel.: +34 91 753 18 02

#### Italy

Tel.: 800 60 509 999 Tel.: +34 91 753 18 04

#### Germany

Tel.: 800 60 504 444 Tel.: +34 91 753 18 00

#### United Kingdom

Tel.: 800 60 502 222 Tel.: +34 91 753 18 03

sacrq@repsol.com repsol.com



#### **Corporate Headquarters**

Méndez Álvaro, 44 28045 Madrid. Spain Tel.: +34 91 753 81 00 **www.repsol.com** 

### Technical Service & Development Repsol Technology Lab

Agustín Betancourt, s/n 28935 Móstoles, Madrid. Spain Tel.: +34 91 753 86 00

atd\_poliolefinas@repsol.com