



## Hot melt adhesives

EVA & EBA







### New!

## 100% circular EVA & bio-based ranges

Our Repsol Reciclex® range of EVA & EBA copolymers from chemical recycling, and our bio-based range work on carbon footprint reduction and circularity, helping our customers meet their value chain needs with high-value propositions.

We offer three new ranges to support your projects in a customized way:

- 100% circular EVA range ISSC Plus certified.
- Entire ISCC Plus certified EVA & EBA bio-based range, including:
  - **First generation Bio (1G)** from sustainably sourced crops, following the ISCC EU 202 best environmental, social, and economic practices.
  - Second generation bio-based circular EVA & EBA range (2G) from bio and organic waste.



# Repsol. A global multi-energy company

#### With over 8 decades of experience

We are leading the energy transition by being the first company in the energy sector to set the goal of reaching net zero emissions by 2050.

Present throughout the energy value chain, the company employs 24,000 people worldwide and distributes its products in nearly 100 countries. 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 petrochemicals:** ethylene, propylene, butadiene, 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 personnel specialized on Product Stewardship.

Repsol's commitment to R&D is 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.

## 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 Recyclass.

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.

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.

Commited to Net Zero Emissions

Furthermore, we offer a full Repsol ISCC Plus Certified Polyolefin Bio-based range, including 1<sup>st</sup> generation Bio derived from sustainably sourced crops, following best practices, the ISCC 202 Sustainability Requirement, and 2<sup>nd</sup> generation Bio-Based Polyolefins Advanced Bio-Based Feedstock derived from bio and organic waste.

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.



## 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 46 years of experience in the market

At Repsol, we have developed an integrated chemical business that allows us to control all critical 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:









& infrastructure



Packaging





Healthcare

Household





# Differentiated products for an industry that keeps the world bound together

Repsol displays one of the market's most comprehensive ranges of EVA & EBA copolymers. Our production process enables us to increase our portfolio according to our client's needs continuously.

We are the only producers of very low viscosity EVA grades.

Our products offer excellent processing, thermal stability, and adhesion properties to meet the requirements of the most demanding industries in adhesive applications.

Repsol Primeva® and Repsol Ebantix® can be blended to modulate hot-melt properties.

Our strong commitments:

- Ready to be part of new projects.
- Capable of developing tailor-made grades.
- Excellent Technical service and development.
- Fulfillment the highest quality standards and new food contact requirements.

All our EVA and EBA grades are available as circular and bio-based, including both bio (1G & 2G).

Designing cutting-edge products to offer reliable and quality solutions to enhance our client's business.

## Repsol circular and bio-based range for hot melt adhesives

#### Advancing the sustainability circle

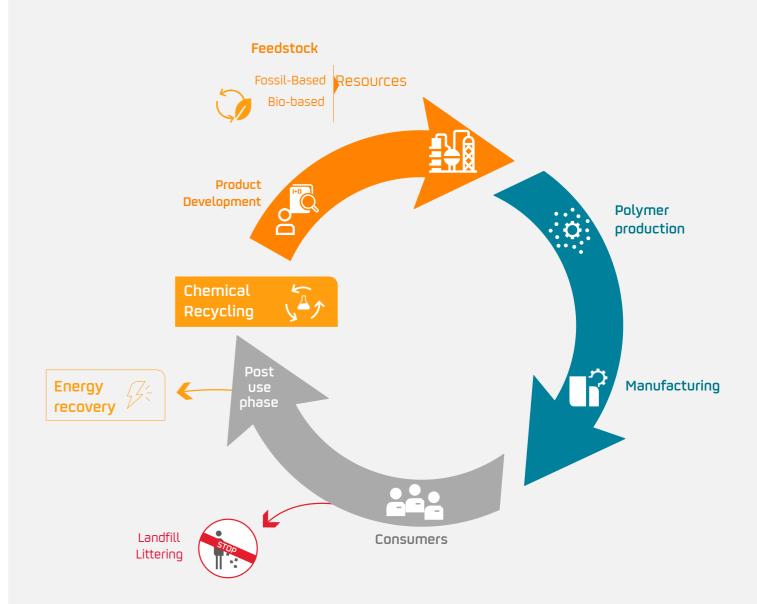
- Contributing to meet voluntary commitments and legislative targets.
- Helping our customers to fully meet their sustainability targets.
- Two ranges to support every customer project.
- Vocation to boost the circular economy.





- We are embarking on partnerships to find solutions to diversify our bio-based and circular feedstock.
- We are committed to innovating to increase the circularity and efficient use of plastic materials.
- Reducing fossil raw material consumption and focus on carbon footprint savings.





## New! Repsol Reciclex® circular and bio-based range

#### Two solutions to reduce carbon footprint and provide sustainability to your business:

- All our EVA and EBA grades are available as circular and bio-based, including both bio [1G & 2G].
- Same properties and functionality as the regular Repsol range but with a lower carbon footprint.
- Complies with all Food Safety regulations and, like the rest of our range, they are 100% recyclable
  to close the circle of sustainability.

First product on the market to incorporate 100% circular AV.



#### **CHEMICAL RECYCLING**

The range that fosters circularity

- 100% recycled plastic raw material.
- 100% recyclable
- Completes material life cycle.
- Full Repsol range available.
- Same properties as standard range.
- Suitable for food, hygiene and medical use.
- Low carbon footprint.
- ISCC Plus Certificate.

#### **BIO-BASED**

The negative carbon footprint polyolefin range

#### Two options:

- (Bio 1G) Bio vegetable origin made from sustainable crops (palm oil, soja oil, shea nuts oil).
- (Bio 2G) Bio Circular, bio-waste origin i.e. EVA made from vegetable oil or animal waste like UCO's or brown animal grease.
- 100% bio-based.
- 100% recyclable.
- Complies with all Food Safety regulations and, like the rest of our range, they are 100% recyclable to close the circle of sustainability.
- ISCC EU (Renewable Energy Directive.
   2018/2001) compliance.
- ISCC Plus certificate.
- Suitable for food, hygiene and medical use.



#### How do we name our sustainable grades?

#### Equivalent for our Repsol Primeva® P28400 standard grade:

- Repsol Reciclex® Circular: CIRCP28400
- Repsol Reciclex® Bio (1G): BIOP28400
- Repsol Reciclex® Bio Circular (2G): CBIOP28400

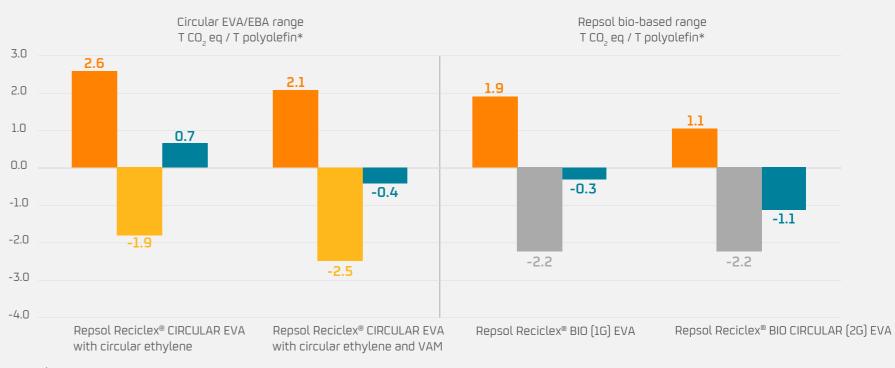
#### Equivalent for our Repsol Ebantix® E27150 standard grade:

- Repsol Reciclex® Circular: CIRCE27150
- Repsol Reciclex® Bio (1G): BIOE21750
- Repsol Reciclex® Bio Circular (2G): CBIOE21750



## Even negative carbon footprint depending on the range

#### Carbon footprint in the plastic system

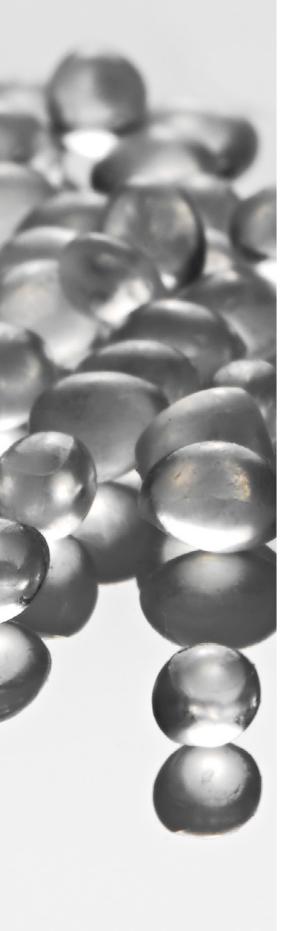


\*Based on a 25% VA average content.

- Cradle to gate carbon footprint
- CO<sub>2</sub> savings from avoidance of plastics to energy recovery pathway
- CO<sub>2</sub> sequestered (100% biogenic carbon in the polyolefin)
- Net CO<sub>2</sub> savings in the system



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, this certification is an example of our commitment to promote the circular economy of our materials.





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

#### Trust

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

#### Safety

Reducing residual VA content beyond European Legislation.

#### 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 flexibility and transparency make it suitable for film applications.

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

## Two solutions. Countless advantages

- Two complementary ranges of copolymers.
- High quality products surpassing all European Standards.
- High consistency.
- High fluidity grades
- For a wide range or adhesives.
- Constant product innovation.
- Research of new applications.
- Strong customer service orientation.
- An integrated chemical company, a reliable supplier.

## Food contact leadership

Repsol has the commitment and willingness to offer the safest products for food contact. For this purpose, Repsol Primeva® and Repsol Ebantix® grades for hot melts are steadily being improved to ensure their compliance with the most demanding regulations through:

- The use of new additives approved for food contact.
- The substitution of additives with Specific Migration Limits or included in the list of SVHC.
- The reduction of residual VA content beyond European legislation for the Repsol Primeva® range.
- All our industrial complexes are FSSC 22000 certified for food contact.











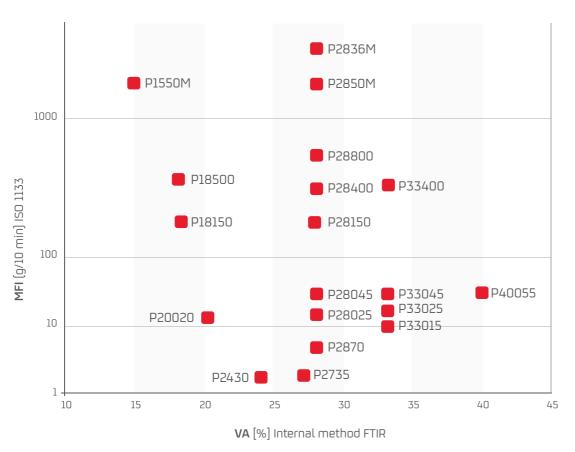


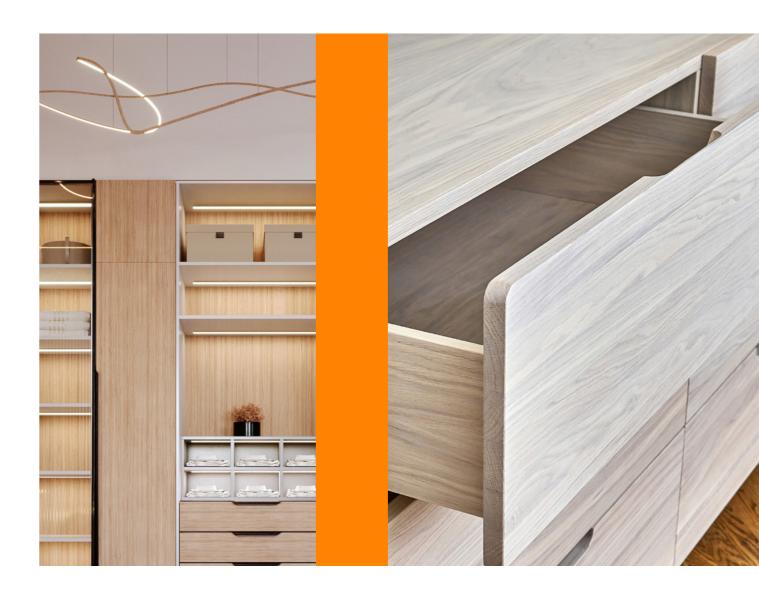


The Repsol Primeva® grades for hot melt adhesives have been designed for the highest technical requirements of the hot melt industry as well as for the current and future needs of adhesive industry.



#### Repsol Primeva® portfolio for hot melt adhesives





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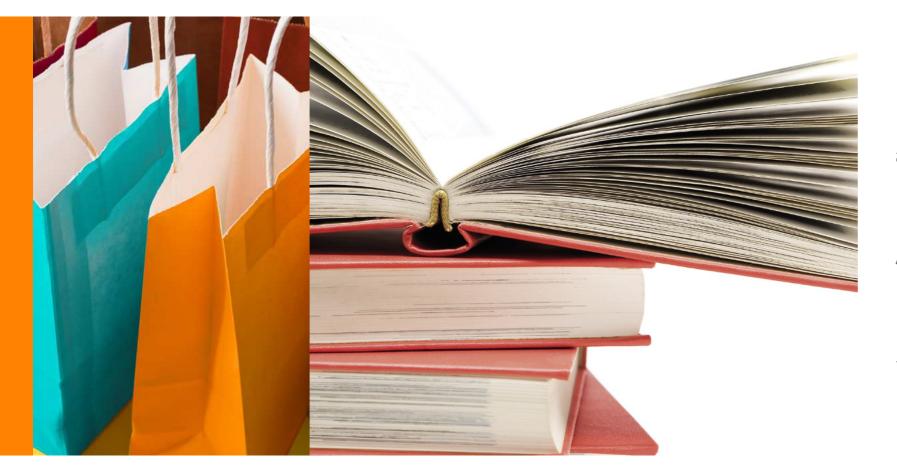
#### Ultrastable Repsol Primeva® for hot melts

All the Repsol Primeva® grades for hot melts have been designed to be ultrastable against thermal degradation, reducing the coloring of the adhesive and maintenance stops.

#### Oxidation Induction Time 190 °C. min

EVA	Repsol Primeva®	Metallocene
38	> 90	54

Test carried out according to ISO 11357-6



#### Ageing test performance at 170°

Repsol

Metallocene

Primeva®







Test carried out according to ASTM D794

	VA	MH
Grade	[%]	g/10 min
	Internal method FTIR	ISO 1133
P1550M	15	*
P18150	18	150
P18500	18	500
P20020	20	20
P2430	24	3
P2735	27	3.5
P2870	28	7
P28025	28	25
P28150	28	150
P28400	28	400
P28045	28	45
P28800	28	800
P2850M	28	*
P2836M	28	**
P33015	33	15
P33025	33	25
P33045	33	45
P33400	33	400
P40055	40	55









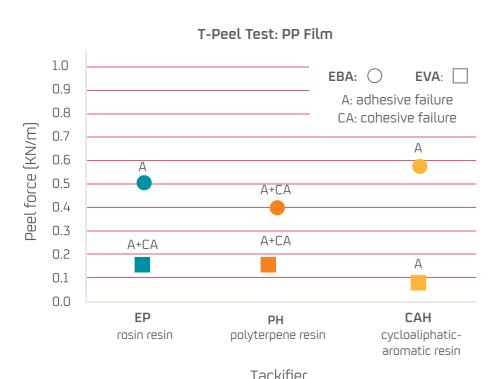




The Repsol Ebantix® grades for hot melt adhesives have been designed to obtain the maximum performance of the final hot melt in a wide range of service temperatures, high adhesion, and very high stability against thermal degradation.

#### High adhesion to difficult substrates

Repsol Ebantix® for hot melt has high adhesion to those difficult substrates like polypropylene or aluminum.



TOCKITICI
Test carried out in collaboration with the University
of Alicante. Peel test according to UNE/EN ISO 11339

Grade	BA [%] Internal method FTIR	MFI g/10 min ISO 1133
E1715	17	1,5
E1770	17	7
E20020	20	20
E2735	27	3,5
E2770	27	7
E27025S	27	25
E27150	27	150
E33040	33	40
E33150	33	150

Advanced mechanical and optical properties with good adhesion to several substrates and easy processing













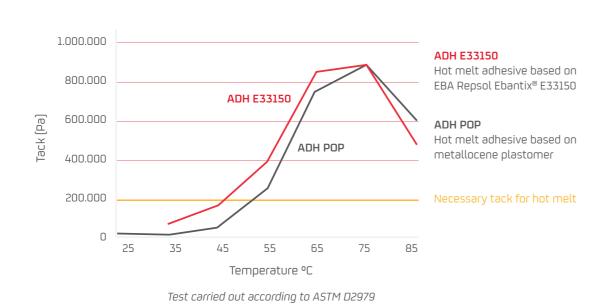


#### Widest range of service temperatures

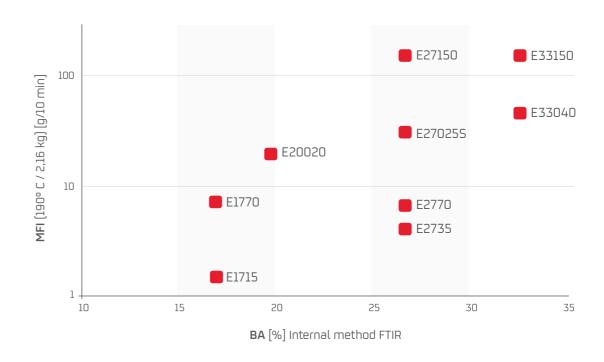
Adhesives formulated with the Repsol Ebantix® grade E33150 show the widest range of service temperatures, with an especial good performance at low temperatures.

#### Very high thermal stability

All the Repsol Ebantix® products for hot melts have outstanding thermal stability, reducing coloration of the adhesive and maintenance time.



#### Repsol Ebantix® portfolio for hot melt adhesives







## 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

ISO 45001

All industrial complex

FSSC 22000

All petrochemical plants

ISO 9001 ISCC Plus Puertollano, Tarragona and Monzón plants

IATF 16949

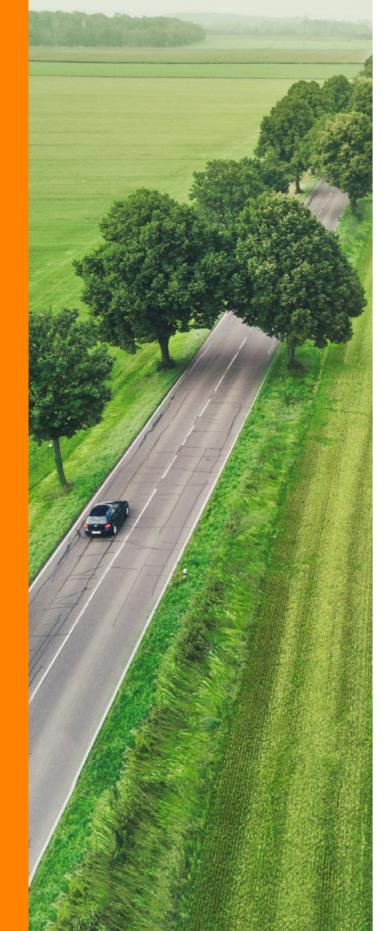
Puertollano and Monzón plants

Recyclass

Puertollano, Tarragona and Sines

SO 50001 SO 14001 SO 14064





### Environment

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.

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, emissions reduction at the plastics' end of life with our circularity projects, while we offer sustanaible solutions for our clients 100% recyclable polyolefins.

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.

Collaboration

Laboration Results orientation Inspiring leadership

Intrapreneurship Accountability



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