



Cables

Polyethylene / EVA / EBA / Polypropylene



Repsol. A global multi-energy company

 **Over 8 decades of experience** in the world of energy

One of the largest energy companies worldwide and one of the biggest private oil & gas companies.

Repsol is committed to our customers' global strategy putting our entire organization at their disposal to achieve a common goal: to create long-term relationships which enable us to rise to the common challenges our business presents.

 **Over 90 countries** where we market our products

Repsol has a diverse workforce of over 25,000 employees, marketing products in over 90 countries and reaching 10 million customers. Repsol's highly integrated Chemical Division focuses its strategy on the continuous generation of value through differentiated products and services.

Repsol Campus, Corporate Headquarters in Madrid

LEED® Platinum certificate, awarded by the prestigious U.S. Green Building Council (USGBC), for new buildings construction



Chemicals



Added value

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



Over 1,500 references

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 specialised on Product Stewardship.

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

Working for a more sustainable future

At Repsol, we believe in the **circular economy** and we run specific projects **that minimise 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 specialised department dedicated to the circular economy and the recycling of materials after consumption to drive the development of new materials offering innovative technical polyolefin solutions. We use recycled plastics in critical applications, creating new markets for plastic waste and incentivising circularity by giving it a new use. As a result, we provide a wide range of products for rigid blow-moulded packaging offering excellent technical performance.

We are a driving force in the circular economy for plastics and we are a member of the “Circular Plastics Alliance”, an initiative launched by the European Commission for ten million tonnes of recycled plastic to find their way into new products in the European market by 2025, in line with the strategy for the circular plastics economy published by the Commission in 2018.



Committed to cable innovation

Designing the future of cable technology



At Repsol, we believe in constant innovation and product differentiation to offer our clients always the best solutions, with more and more leading cable manufacturers trusting this approach.

Following our past developments in insulation applications. We are currently developing an enhanced range of products for cable jacketing, widening the solutions for natural and black-compounded jacketing applications, both in energy and telecommunication cables.

By obtaining the ISCC PLUS certification of all our polyolefin production centers, we reaffirm our leadership and commitment to the certified circular polyolefins.

Cables



Over 33% expected increase
in energy consumption by 2030

Chemicals, and speciality plastics, are the key element to the development of modern and advanced cables to meet the increasingly higher requirements in electrical infrastructures.



Over 30 years of experience
in technical services and development

Our Technology Lab Centre is the hub of our innovation and development. This is where our products come to life and are meticulously perfected in our quest for **innovative solutions to meet our customers' needs**. Our mission is to develop cutting-edge products and offer **high-quality solutions** to improve your business.

Offering solutions in:

LDPE

EVA

PP

HDPE

EBA





Over 30 grades for cables

Power and communication cables

Power cables

Insulation

Developed specifically for crosslinking process:

Low voltage: wide LDPE product range stabilised and additive free for use with both peroxide and silane crosslinking processes.

Medium voltage: clean LDPE product range for direct peroxide injection.

Semiconductive shields

Wide EVA and EBA range as base resins to manufacture semiconductive compounds.

Jacketing

LDPE, MDPE and HDPE grades which contain additivation for excellent stress cracking performance.

EVA, EBA and PP base resins intended for flame retardant (HFFR) compounds.

Communication cables

Insulation

LDPE and HDPE products stabilised with good processability.

Jacketing

LDPE, MDPE and HDPE grades which contain additivation for excellent stress cracking performance.

EVA, EBA and PP base resins intended for flame retardant (HFFR) compounds.

Insulation grades for medium voltage power cables



Grade	MFI	Density	Elongation at break	Tensile strength at break	Dielectric constant	Dissipation factor	Polymer type / Reticulation / Description
	ISO 1133 g/10' 190°C; 2.16 kg	ISO 1183 Kg/m ³	ISO 527-2 %	ISO 527-2 MPa	ASTM D 1531 1MHz	ASTM D 1531 1MHz	
PE004S	2.4	920	500	14	2.3	0.0003	LDPE / Peroxide XLPE / Extra clean XLPE insulation
PE004	2.4	920	500	14	2.3	0.0003	LDPE / Peroxide XLPE / Clean XLPE insulation. Additive free
CP104	2.4	920	500	14	2.3	0.0003	LDPE / Peroxide XLPE / Clean and stabilised XLPE insulation
CP004TR	2.4	920	500	14	2.3	0.0003	LDPE / Peroxide XLPE / Clean XLPE insulation. Additive free / WTR

XLPE: crosslinkable polyethylene



Repsol supplies insulation grades for low and medium voltage power cables. These have been developed specifically for crosslinking process

Insulation grades for low voltage power cables



Grade	MFI	Density	Elongation at break	Tensile strength at break	Dielectric constant	Dissipation factor	Polymer type / Reticulation / Description
	ISO 1133 g/10' 190°C; 2.16 kg	ISO 1183 Kg/m ³	ISO 527-2 %	ISO 527-2 MPa	ASTM D 1531 1MHz	ASTM D 1531 1MHz	
PE003	2.4	920	500	14	2.3	0.0003	LDPE / Peroxide XLPE / Insulation. Additive free
2202F	0.25	921	600	16	2.3	0.0003	LDPE / Silane XLPE / Insulation for Monosil Process. Additive free
PE033	0.3	921	500	14	2.3	0.0003	LDPE / Silane XLPE / Insulation for Monosil Process. Additive free
2303C	0.35	923	400	18	2.3	0.0003	LDPE / Silane XLPE / Insulation for Monosil Process. Stabilised with antioxidant and metal deactivator
Repsol GridEffect PSIL210	0.9	921	276	16	2.25	0.0003	LDPE / Silane XLPE / Ambient curable insulation compound for LV power cables. Sioplas Process
Repsol GridEffect CAT210	6	923	-	-	-	-	Natural catalyst masterbatch for ambient temperature moisture-curable insulation system for LV power cables

LV: low voltage



The information contained herein is based on REPSOL QUIMICA's current knowledge and experience and is presented in good faith for guidance only. Although REPSOL QUIMICA declares to have been most diligent when including the information contained herein, taking into account that several and different factors may affect the processing, application or use of the products, the convertor shall be responsible in every case for the conditions under which the products are transformed as well as for the final use given to them. REPSOL QUIMICA warns that this information may undergo variations or improvements; therefore REPSOL QUIMICA is not obliged to reflect these in this document or to communicate them to whomever may have access to it. Moreover, these readers should be aware that some or all of the products might be protected by intellectual property rights. © REPSOL QUIMICA, S.A. 2020. All rights reserved.

Insulation grades for telecommunication cables



Grade	MFI	Density	Elongation at break	Tensile strength at break	Dielectric constant	Dissipation factor	Polymer type / Description
	ISO 1133 g/10' 190°C; 2.16 kg	ISO 1183 Kg/m ³	ISO 527-2 %	ISO 527-2 MPa	ASTM D 1531 1MHz	ASTM D 1531 1MHz	
CP121	0.35	921	600	16	2.3	0.0003	LDPE solid insulation / General purpose insulation. It contains a metal deactivator
CAB4910	0.9	949	700	20	2.3	0.0004	HDPE Stabilised with a metal deactivator / Solid insulation cables



LDPE and HDPE grades for the communication industry are specially additivated to assure an excellent quality of the cable

The information contained herein is based on REPSOL QUIMICA's current knowledge and experience and is presented in good faith for guidance only. Although REPSOL QUIMICA declares to have been most diligent when including the information contained herein, taking into account that several and different factors may affect the processing, application or use of the products, the convertor shall be responsible in every case for the conditions under which the products are transformed as well as for the final use given to them. REPSOL QUIMICA warns that this information may undergo variations or improvements; therefore REPSOL QUIMICA is not obliged to reflect these in this document or to communicate them to whomever may have access to it. Moreover, these readers should be aware that some or all of the products might be protected by intellectual property rights. © REPSOL QUIMICA, S.A. 2020. All rights reserved.

Jacketing grades for power and telecommunication cables



Grade	MFI	Density	Elongation at break	Tensile strength at break	Dielectric constant	Dissipation factor	Polymer type / Application / Description
	ISO 1133 g/10' 190°C; 2.16 kg	ISO 1183 Kg/m ³	ISO 527-2 %	ISO 527-2 MPa	ASTM D 1531 1MHz	ASTM D 1531 1MHz	
2202CN	0.25	934	600	14	2.6	0.005	Black LDPE / Telecommunication jacketing / Excellent processability
3802N	1 (5 kg)	950	900	28	2.5	0.0002	Black HDPE / Jacketing for energy cables / High stiffness
C220N	0.6	955	800	27	2.7	0.006	Black HDPE / Jacketing for fibre and telecommunication cables / Low shrinkage
5605N	0.45	958	600	> 30	2.5	0.005	Black HDPE / Jacketing for energy and telecommunication cables
C240UV	21 (21.6 kg)	939	800	28	2.3	0.00013	MDPE / Jacketing for energy and telecommunication cables / Colorable and UV protection
New CAB4805UV	0.5	948	650	30	2.32	0.0002	HDPE / Jacketing for energy and telecommunication cables / Colourable and UV protected



The information contained herein is based on REPSOL QUIMICA's current knowledge and experience and is presented in good faith for guidance only. Although REPSOL QUIMICA declares to have been most diligent when including the information contained herein, taking into account that several and different factors may affect the processing, application or use of the products, the convertor shall be responsible in every case for the conditions under which the products are transformed as well as for the final use given to them. REPSOL QUIMICA warns that this information may undergo variations or improvements; therefore REPSOL QUIMICA is not obliged to reflect these in this document or to communicate them to whomever may have access to it. Moreover, these readers should be aware that some or all of the products might be protected by intellectual property rights. © REPSOL QUIMICA, S.A. 2020. All rights reserved.

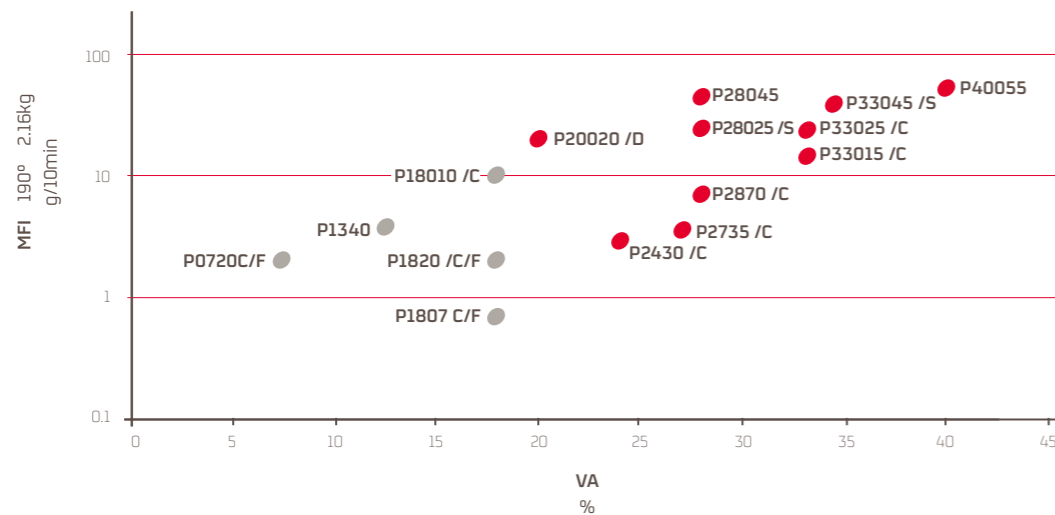
Base resins for cable compounds



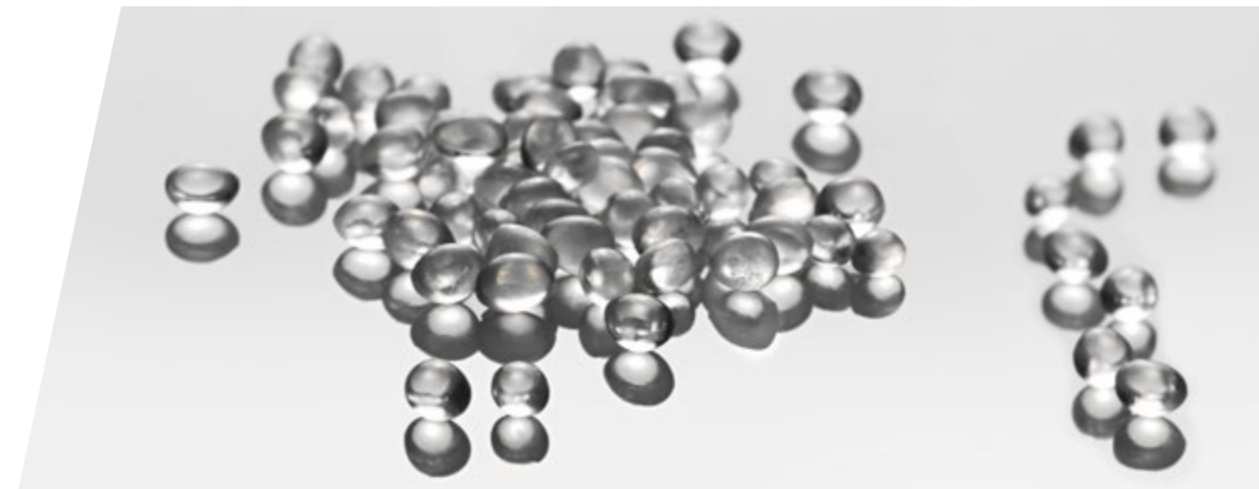
Grade	MFI ISO 1133 g/10' 190°C; 2.16 kg	VA content Internal method %	Density ISO 1183 kg/m ³	Elongation at break ISO 527-2 MPa	Tensile strength at break ISO 527-2 MPa	Polymer type / Application
P1807C	0.7	18	941	*	*	EVA / Base resin for cable compounds
P1820C	2	18	937	750	17	EVA / Base resin for cable compounds
P0720C	2	7.5	926	750	19	EVA / Base resin for cable compounds
P2430C	3	24	944	740	25	EVA / Base resin for cable compounds
P2735C	3.5	27	953	555	23	EVA / Base resin for cable compounds
P1340	4	12.5	931	650	14	EVA / Base resin for cable compounds
P2870C	7	28	950	760	22	EVA / Base resin for cable compounds
P18010C	10	18	937	700	16	EVA / Base resin for cable compounds
P33015C	15	33	956	800	14	EVA / Base resin for cable compounds
P20020	20	20	940	780	11	EVA / Base resin for cable compounds
P28025	25	28	950	790	12	EVA / Base resin for cable compounds
P33025C	25	33	956	825	6	EVA / Base resin for cable compounds
P33045	45	33	956	850	5	EVA / Base resin for cable compounds
P28045	45	28	950	750	8	EVA / Base resin for cable compounds
P40055	55	40	969	936	7	EVA / Base resin for cable compounds

* For further information regarding this grade, please contact Repsol's Technical Service & Development at atd_poliiolefinas@repsol.com

These base resins are suitable for the fabrication of halogen-free flame-retardant (HFFR), semiconductive or other cable compounds



Also available these other qualities: /C - Cable /F - Film /S - Solar /D - Coating ● Low content ● High content



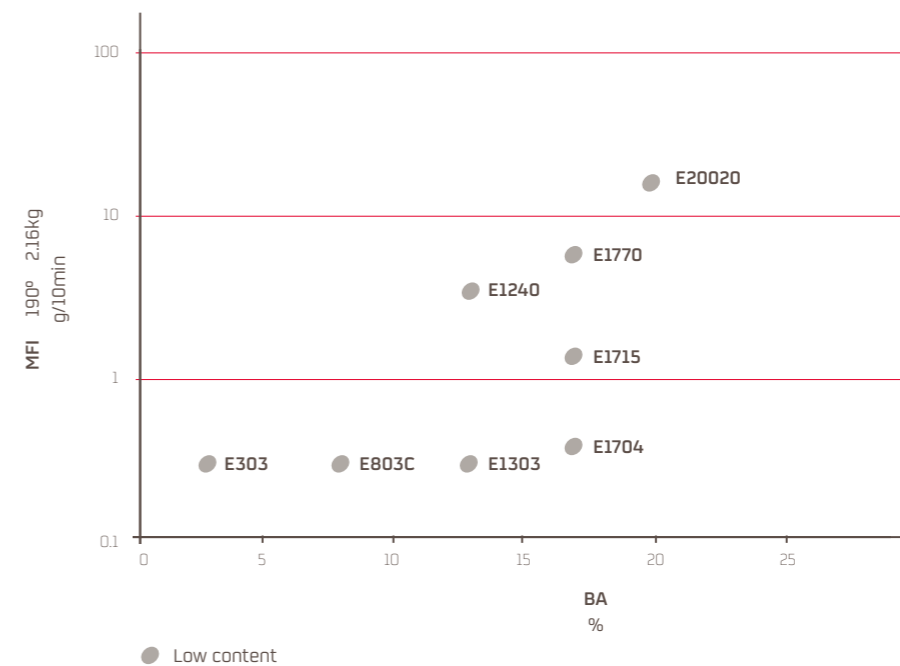
Base resins for cable compounds



Grade	MFI ISO 1133 g/10' 190°C; 2.16 kg	BA content Internal method %	Density ISO 1183 kg/m ³	Elongation at break ISO 527-2 MPa	Tensile strength at break ISO 527-2 MPa	Polymer type / Application
E803C	0.3	8	928	*	*	EBA / Base resin for cable compounds
E1303	0.3	13	925	*	*	EBA / Base resin for cable compounds
E303	0.3	3	923	*	*	EBA / Base resin for cable compounds
E1704	0.4	17	625	*	*	EBA / Base resin for cable compounds
E1715	1.5	17	926	833	17	EBA / Base resin for cable compounds
E1240	4	12	925	700	14	EBA / Base resin for cable compounds
E1770	7	17	924	800	12	EBA / Base resin for cable compounds
E20020	20	20	925	720	8	EBA / Base resin for cable compounds

* For further information regarding this grade, please contact Repsol's Technical Service & Development at atd_poliolefinas@repsol.com

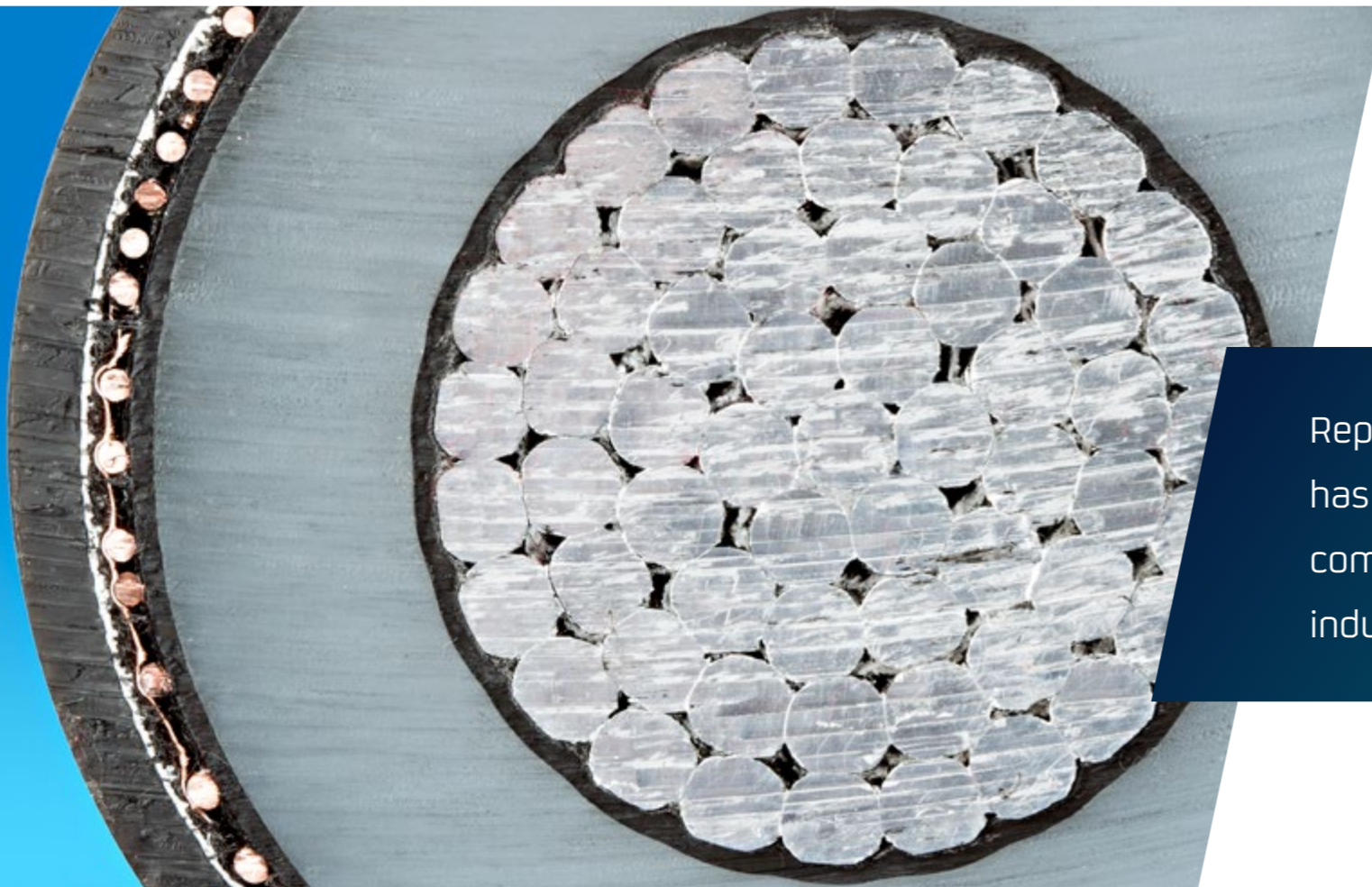
These base resins are suitable for the fabrication of halogen-free flame-retardant (HFFR), semiconductive or other cable compounds



Base resins for cable compounds: PP block Copolymer



Grade	MFI	BA content	Density	Elongation at break	Tensile strength at break	Polymer type / Application
	ISO 1133 g/10' 190°C; 2.16 kg	Internal method %	ISO 1183 kg/m ³	ISO 527-2 MPa	ISO 527-2 MPa	
PB130G1M	1.3	-	905	600	14	PP block Copolymer / Flame retardant compounds
PB140G2M	3.5	-	905	600	18	PP block Copolymer / Flame retardant compounds



Repsol offers a comprehensive range of products which has been designed according to the standards of the communication cable, optic fibre and power cables industry requirements



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.

Safety is our priority

Petrochemical complexes and logistics centres all have OHSAS 18001.2007 [Occupational Health and Safety Assessment Series] certification for their rigorous safety measures.

We are food safety leaders. All of 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

Petrochemical plants, plants and logistics

OHSAS 18001.2007

All industrial complex

FSSC 22000

A global company that seeks the welfare of people and is a step ahead in building a better future through the development of smart energy

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



Quality

All petrochemical plants are compliant with the current ISO 9001:2015 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.

All petrochemical plants

ISO 9001:2015

Environment

We set up and deploy ambitious energy efficiency programmes to reduce energy consumption and GHG emissions as one of the key elements of our strategy. These programmes pursue long term targets which have been made public in order to facilitate their progress by the stakeholders. In this sense, Repsol Química has attained a final reduction of 0.56 million tonnes of GHG emissions at the end of the 2006-2013 period. Repsol is currently working on a new target covering the period 2014-2020, that involves an additional reduction of 0.42 million tonnes of CO₂. 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, as well as manage 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 performances improvement and thus contribute to a more efficient and sustainable use of energy.

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. Repsol reinforced its commitment with sustainability by signing the "Paris Pledge for Action" document. An historical agreement in which both developed countries and less developed countries and companies engaged to contribute towards a low CO₂ emission economy.

Puertollano, Tarragona and Sines

ISO 50001 / ISO 14001 / ISO 14064

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
www.repsol.com



Corporate Headquarters

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

Technical Service & Development Repsol Technology Centre

Ctra. de Extremadura A5, km 18
28931 Móstoles, Madrid. Spain
Tel.: +34 91 753 86 00
atd_poliiolefinas@repsol.com



Results Orientation

Collaboration

Inspiring Leadership

Accountability

Intrapreneurship