



# Agriculture

Polyethylene / EVA / EBA / Polypropylene



# Empowering agriculture through innovation & sustainability

**Innovative masterbatches and polymers: enabling sustainable agricultural practices and enhanced crop yield.**

Repsol offers a **wide range of masterbatches, EVA/EBA copolymers, and metallocene linear low-density polyethylene** for producing films for agriculture. Our raw materials enable earlier, larger, more frequent, and better-quality crops, leading to more sustainable agricultural practices.

Our multifunction masterbatches are designed to meet the requirements of geographic areas with high ultraviolet radiation and critical growing conditions, offering tailored solutions **for greenhouses, tunnels, mulching, silage, silo bags, and stretch agricultural film.**

Committed to innovation and sustainability, Repsol's Chemicals Division continues to drive advancements in the agriculture sector, providing farmers with the tools they need to succeed in this challenging and ever-changing industry.

**Let's grow together!**





# 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 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 Recyclclass.

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 the traceability of the plastic waste used as raw material in our circular polyolefins.

Furthermore, **we offer a full Repsol Reciclex® ISCC Plus Certified Polyolefin bio-based range, including first-generation Bio (1G) from sustainably sourced crops**, following the ISCC EU 202 best environmental, social, and economic practices; and **second-generation bio-based circular polyolefins (2G) from renewable waste**.

Our **ambition is to produce 10% of our polyolefins as biobased and circular products by 2030**, a move that will promote the circular economy. This initiative, in conjunction with other initiatives in Repsol's circular economy strategy, will support the company's goal of achieving 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**.



**Committed  
to Net Zero  
Emissions**





12 grades for agriculture

# Agriculture

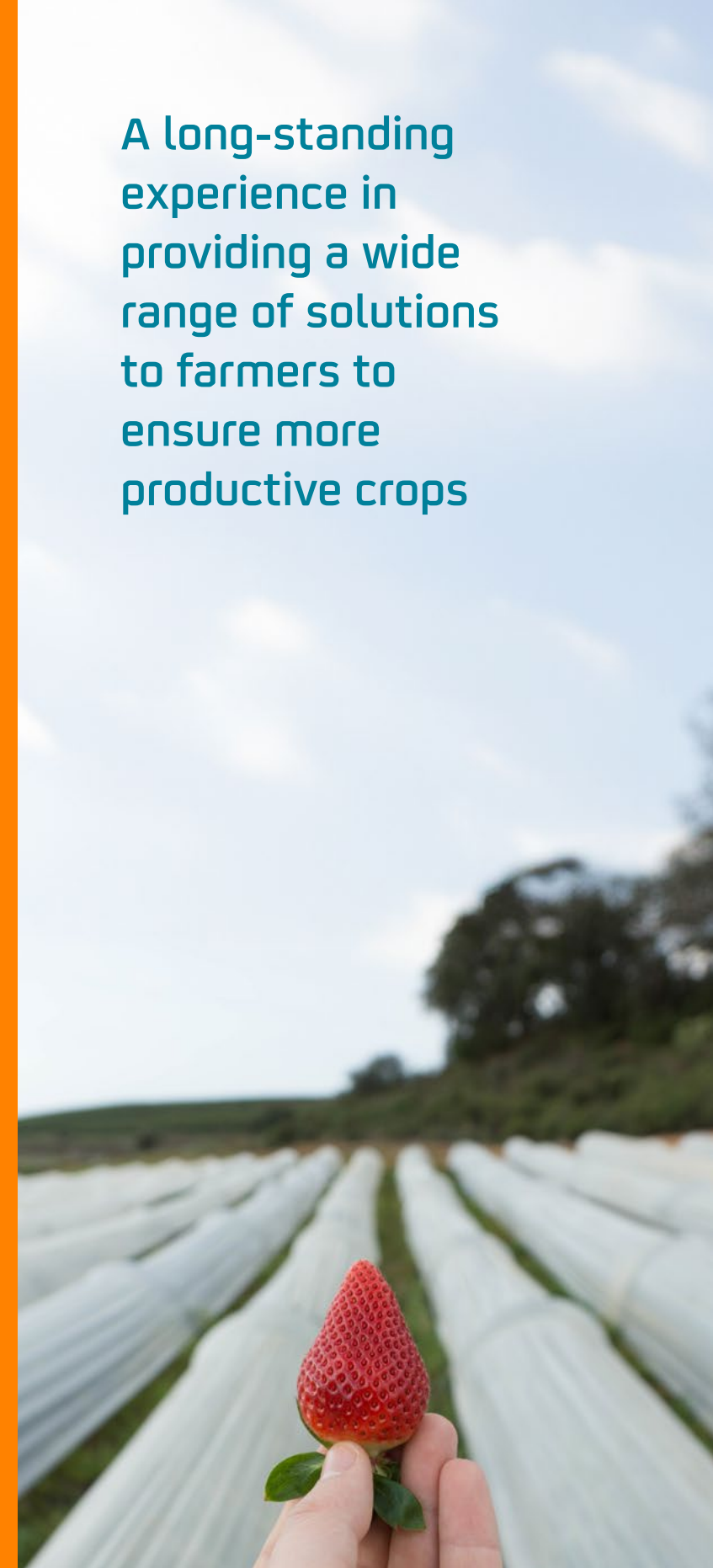
## High technology for the field

Repsol is committed to caring for the environment and continues its research into high technology to make agriculture under plastic increasingly sustainable. And all this with strict management of the quality and safety in its manufacturing process, distribution, transportation and storage of final products.

## More than 40 years working alongside farmers producing and marketing materials for greenhouse covers

Our Repsol Technology Lab 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.

A long-standing  
experience in  
providing a wide  
range of solutions  
to farmers to  
ensure more  
productive crops



# UV/AO masterbatch

Repsol Alcudia®



| Grade        | Additives                                 | Recommended dosage                                                                      | Maximum radiation | Thickness  | TGLV     | Haze     | Applications             |
|--------------|-------------------------------------------|-----------------------------------------------------------------------------------------|-------------------|------------|----------|----------|--------------------------|
|              |                                           |                                                                                         | KLy/year          | µm         | %        | %        |                          |
| IMB UV2120/5 | Hals, UV absorbers, AO                    | 5 % for 2 agricultural seasons                                                          | 160               | 180        | 90       | 22       | Greenhouses and tunnels. |
| IMB UV2130/6 | Hals                                      | 6 % for 2 agricultural seasons                                                          | 160               | 180        | 90       | 40       | Greenhouses and tunnels. |
| 117/TD       | Nickel quencher (green), UV absorbers, AO | 7 % for 2 agricultural seasons<br>10 % for 2 years                                      | 160               | 180        | 90       | 22       | Greenhouses and tunnels. |
| IMB UV2000   | Hals                                      | 6 % for 3 agricultural seasons<br>6.5 % for 4 agricultural seasons*<br>2000 ppm sulphur | 160<br>100        | 200<br>200 | 92<br>92 | 8<br>8   | Greenhouses and tunnels. |
| IMB UVH3A    | Hals, UV absorbers, AO                    | 5.5 % for 3 years 2000 ppm sulphur<br>6.5 % for 3 years 3000 ppm sulphur                | 160<br>160        | 200<br>200 | 92<br>92 | 17<br>17 | Greenhouses and tunnels. |
| IMB UV3020   | Hals, UV absorbers, AO                    | 6.5 % for 3 years 3000 ppm sulphur<br>7.5 % for 3 years 5000 ppm sulphur                | 160<br>160        | 200<br>200 | 92<br>92 | 17<br>17 | Greenhouses and tunnels. |

\* Different maximum radiation

AO: Antioxidants



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. 2024. All rights reserved.



# UV masterbatch for agricultural and industrial applications

Repsol Alcudia®



| Grade         | Additives | Recommended dosage                                                      | Applications                                        |
|---------------|-----------|-------------------------------------------------------------------------|-----------------------------------------------------|
| IMB UVSTRETCH | Hals      | 2-4 % agricultural stretch film<br>1-3 % mulch<br>1-2 % industrial film | Cover hay bales, mulching, industrial film, silage. |
| IMB FI1A      | Hals      | 0.7-2 % shrink film<br>2-5 % stabilization silo bags                    | Shrink film, silo bags.                             |





# Thermal masterbatch

Repsol Alcudia®



| Grade          | Property   | Additives       | Recommended dosage                      | Applications                       |
|----------------|------------|-----------------|-----------------------------------------|------------------------------------|
| IMB TERMIC     | Thermicity | Mineral fillers | 4 % for thermicity 80 % in EVA > 5 % AV | Greenhouses, tunnels and mulching. |
| IMB CARGA      | Thermicity | Mineral fillers | 3 % for thermicity 80 % in EVA > 5 % AV | Greenhouses, tunnels and mulching. |
| IMB TERMICLARO | Thermicity | Mineral fillers | 8 % for thermicity 80 % in EBA > 3 % AB | Greenhouses, tunnels and mulching. |
| IMB TER60      | Thermicity | Mineral fillers | 6 % for thermicity 80% in EBA > 3 % AB  | Greenhouses, tunnels and mulching. |





# Greenhouses

## Repsol formulation proposal



It is recommended the use of [Repsol Resistex®](#) 1810F/FG mixed with the LDPE and [Repsol Ebantix®](#) EBA grades to improve mechanical properties and temperature resistance in areas of contact with the greenhouse structure.

A vertical strip image showing the interior of a greenhouse with rows of tomato plants hanging from the ceiling. The plants are green and have many small, unripe yellow-green tomatoes.

**THERMAL**

**A:** 1810F/FG or E303 + UV MB\*

**B:** E803 or E1303 + UV MB\* + Thermal MB\*\*

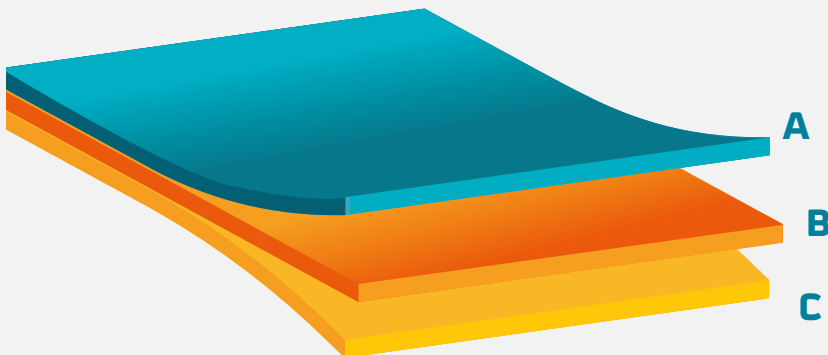
**C:** 1810F/FG or E303 + UV MB\*

**NO THERMAL**

**A:** 1810F/FG + 2303F/2203F + UV MB\*

**B:** 2303F/2203F + UV MB\*

**C:** 1810F/FG + 2303F/2203F + UV MB\*



\* Select the type of UV MB and dosage based on duration, UV radiation, thickness and exposure to contaminants such as sulphur, chlorine, etc.

\*\* For diffuse thermal films, dose IMB CARGA or IMB TERMIC; for clear thermal films dose IMB TERMICLARO

A wide-angle photograph of a greenhouse interior. Multiple rows of tomato plants are hanging from the ceiling, supported by a metal frame. The plants are lush green and covered with numerous small, round, yellow-green tomatoes. The greenhouse has a translucent plastic covering on the roof and sides.



# Double chamber

## Repsol formulation proposal



The double chamber is a passive heating technique. It consists of a plastic sheet that divides the greenhouse into two chambers - lower and upper - with the aim of increasing the accumulated heat during the day in the lower one and slowing down the loss of this heat during the night. [\*]

- Increase in minimum night temperature.
- Reduction of temperature and relative humidity oscillations, combined with adequate ventilation management during the day.
- Elimination of drip on the crop.





# Tunnel

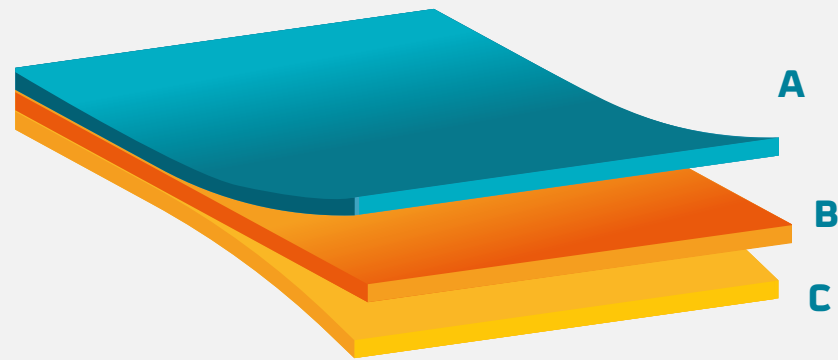
## Repsol formulation proposal



**A:** E303 + 2-4 % MB Hals\*

**B:** E1303 + 2-4 % MB Hals\*

**C:** E303 + 2-4 % MB Hals\*



\* Ex: Film 100 microns, 160 KLy, 2 winters:  
- 4% IMB UV2130/6 for high diffusion  
- 3.5% IMB UV2120/5 for medium diffusion  
- 2.5% IMB UV2000, for high transparency





# Stretch agricultural film

Repsol formulation proposal



**A:** 1810F + 50-70 % P1820F/P1807F + 20 % PIB + 2-4 % IMB STRETCH\*

**B:** P1820F/P1807F + 2-4 % IMB UVSTRETCH\*

**C:** 1810F + 10-20 % 2308F + 2-4 % IMB UVSTRETCH\*

\* Dosage depending on thickness



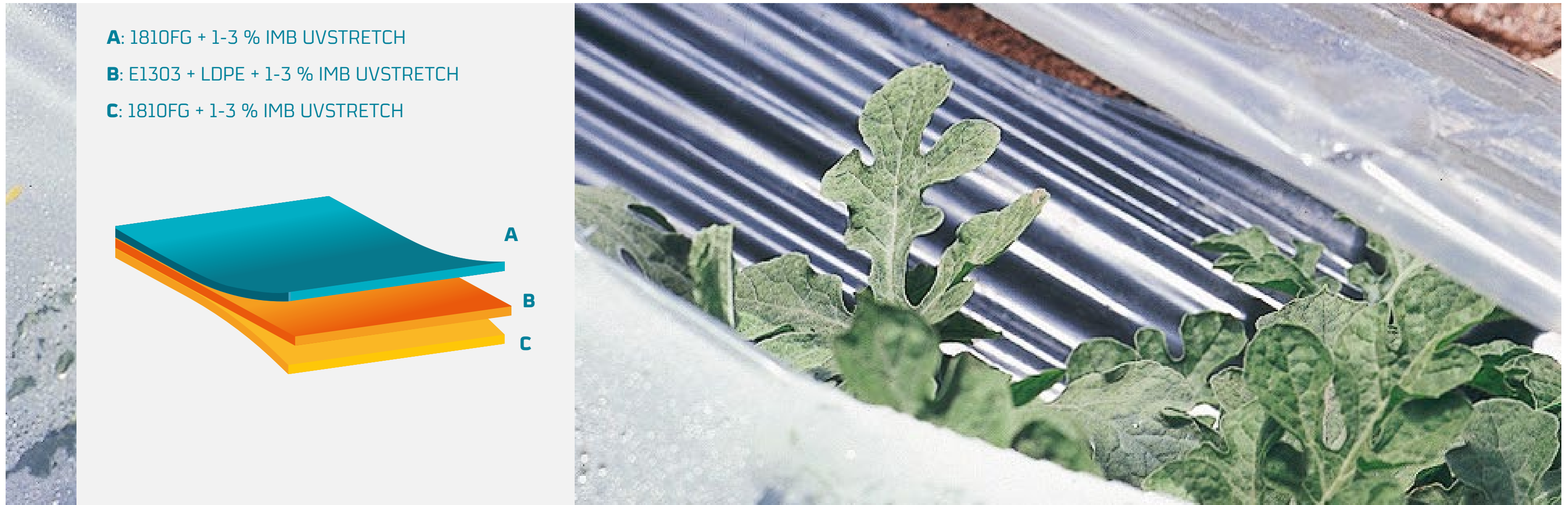
# Mulching

## Repsol formulation proposal



It is recommended the use of [Repsol Ebantix®](#) EBA copolymers to increase film thermicity and the use of [Repsol Resistex®](#) mLLDPE grades to meet mechanical property requirements.

The IMB UVSTRETCH is recommended for UV protection.





# 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](http://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                                  | FSSC 22000               | IATF 16949                               | Recyclclass                   | ISO 50001                        |
|                                            | All petrochemical plants |                                          |                               | ISO 14001                        |
|                                            | ISO 9001                 |                                          |                               | ISO 14064                        |
|                                            | ISCC Plus                |                                          |                               |                                  |







# 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<sub>2</sub> 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, while we offer sustainable 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.

*Efficiency*

*Respect*

*Foresight*

*Value-oriented*





## Chemicals Customer Care

### Spain

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

### Italy

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

### Portugal

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

### Germany

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

### France

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

### United Kingdom

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

[sacrq@repsol.com](mailto:sacrq@repsol.com)

[repsol.com](http://repsol.com)





## **Corporate Headquarters**

Méndez Álvaro, 44  
28045 Madrid. Spain  
Tel.: +34 91 753 81 00  
[repsol.com](https://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](mailto:atd_poliolefinas@repsol.com)