

PP•3D  
Advanced materials



# 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.

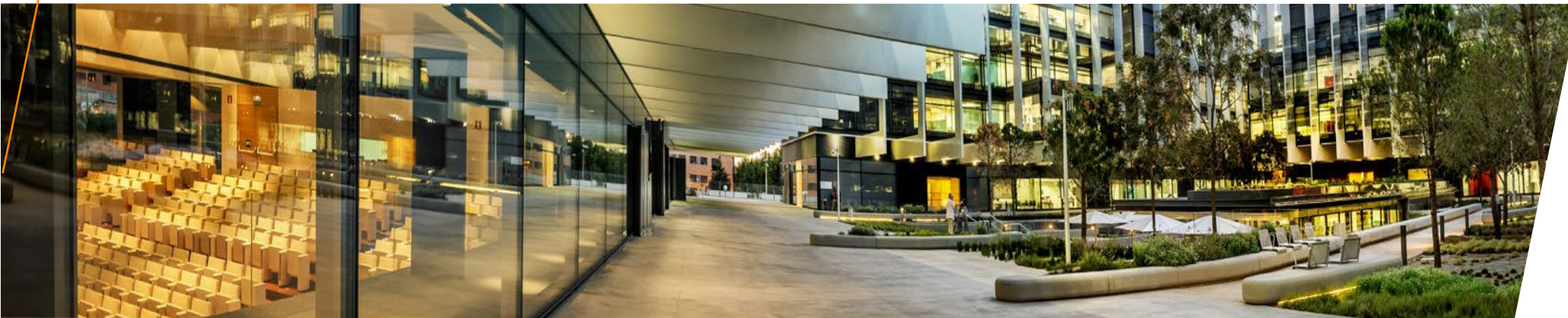


**Over 90 countries**  
where we market  
our products

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*





## 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.



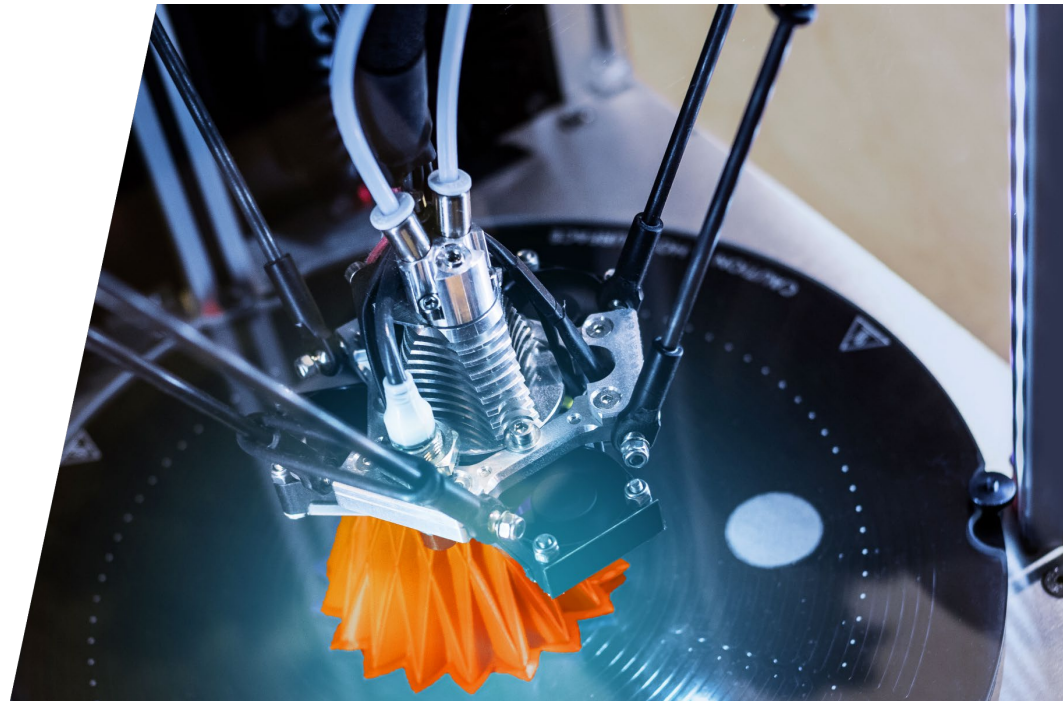
**We revolve around our customers**  
and we innovate with them in mind

Repsol advances in its commitment to innovation by developing new materials for 3D printing. The new range encompasses three materials that cover the primary needs of the FDM application and are available in pellet format.



**Food contact grades**  
Our polymers meet most relevant EU and FDA regulations

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.



We are the first polyolefin producer to have all our complexes certified according to the FSSC 22000 food safety standard




# 3D printing FFF and FGF Technology

## Recommended printing settings

Nozzel temperature [0°]	Bed Temperature [°C]	Printing speed [mm/s]
220-250	40-65	30-65

The new **Repsol 3D printing FFF and FGF grades** have been specifically developed to cover the highest requirements of the sectors that use filament technology FFF (Fused Filament Fabrication, also known as FDM) and FGF (Fused Granular Fabrication), and stand out for their excellent mechanical properties, processability, and stability.



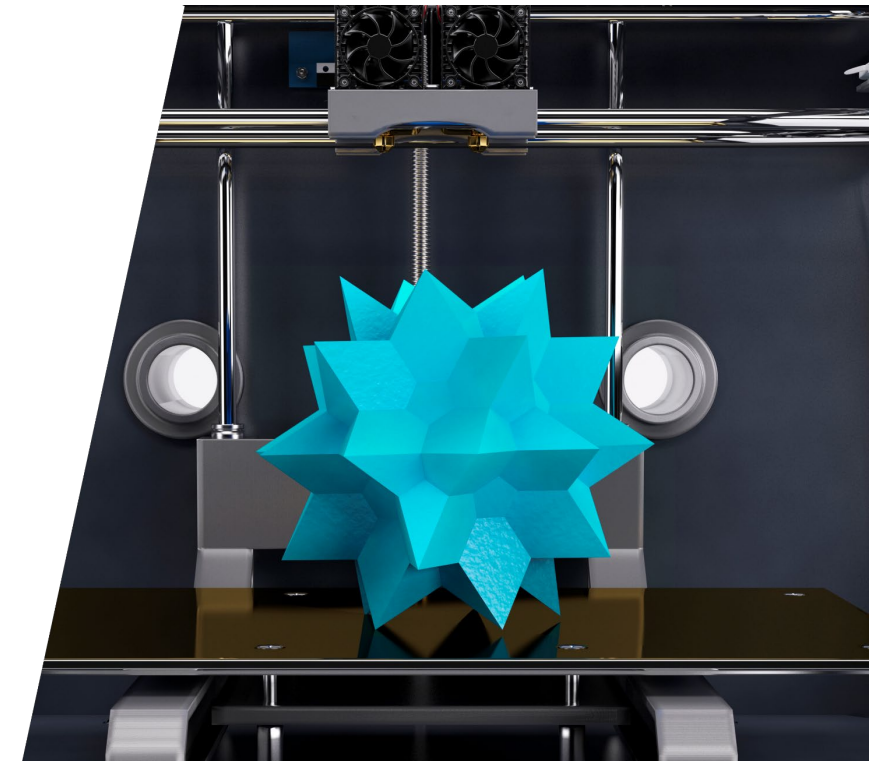
This new range of modified polymers extends the possibilities of the additive technologies, and the manufacture of both prototypes and functional parts

# 3D printing FFF and FGF Technology

## Portfolio



	Grade	Melt Flow ISO 1133 [g/10'] 230°C/2,16Kg]	Flexural Modulus ISO 178 Mpa	Charpy ISO 179 [kJ/m <sup>2</sup> ] 23°C notched	Key properties
<b>NEW</b>	P3D630FV	6,5	6200	16	30% chemically coupled fiber glass reinforced compound. Very high stiffness, keeping good impact strenght
<b>NEW</b>	P3D820FM	20	2500	3	20% mineral load and high processability
	P3D800F	20	950	62	Excellent impact resistance, nucleated and antistatic formulation
	P3D750FM	16	900	61	Excellent stiffness/impact balance, mineral fillers reinforced
	P3D800FG	20	800	60	High impact resistance, excellent processability





# Repsol P3D630FV



Recommended  
printing settings <

> Repsol P3D820FM

# 3D printing FFF and FGF Technology

Repsol P3D630FV

Grade		Melt Flow	Flexural Modulus	Charpy
		ISO 1133 [g/10'] 230°C/2,16Kg	ISO 178 Mpa	ISO 179 [kJ/m <sup>2</sup> ] 23°C notched
NEW	P3D630FV	6,5	6200	16
NEW	P3D630FV [x-y]	6,5	2800	13
NEW	P3D630FV [z]	6,5	1100	4

The **Repsol P3D630FV** is 30% chemically coupled fiber-glass reinforced compound specifically indicated for applications that require excellent impact resistance, high rigidity, and low deformation and contraction behavior in which the main requirements are:

- Very high stiffness
- Good impact strength
- Low warpage and shrinkage behavior
- UV stabilization for outdoor applications



**Repsol P3D630FV** is suitable for technical pieces, functional prototypes, jigs, and fixtures for the automotive sector, among others.





# Repsol P3D820FM



Repsol P3D630FV <

> Repsol P3D800F

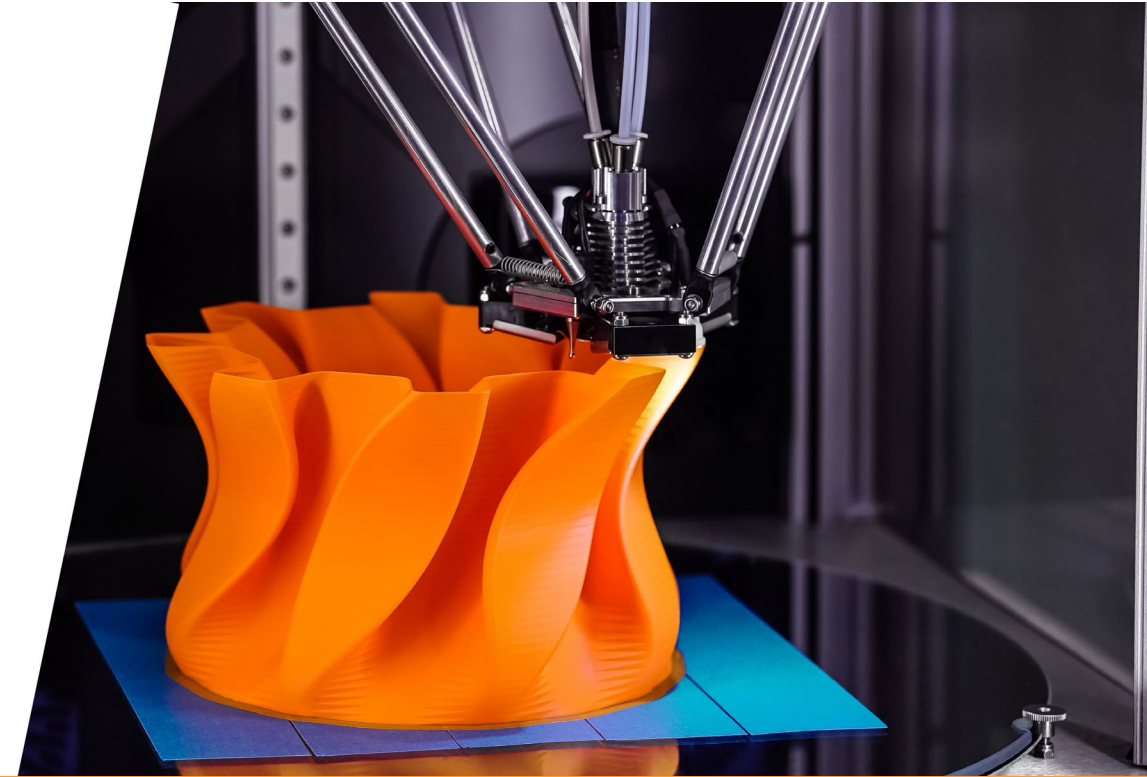
# 3D printing FFF and FGF Technology

Repsol P3D820FM



	Grade	Melt Flow ISO 1133 (g/10' 230°C/2,16Kg)	Flexural Modulus ISO 178 Mpa	Charpy ISO 179 [kJ/m <sup>2</sup> ] 23°C notched
NEW	P3D820FM	20	2500	3
NEW	P3D820FM [x-y]	20	2000	1,8
NEW	P3D820FM [z]	20	1000	1,1

The **Repsol P3D820FM** with 20% mineral fillers is a reinforced polypropylene with medium melt flow rate, that offers high rigidity and very high dimensional stability and warping control maintaining a good level of impact and an optimal surface appearance. It contains UV stabilization and excellent scratch resistance, making it ideal for outdoor use.



**Repsol P3D820FM** is suitable for prototyping, tools, toys, footwear, automotive components, jewelry, and entertainment.



# Repsol P3D800F



Repsol P3D820FM <

> Repsol P3D750FM

# 3D printing FFF and FGF Technology

Repsol P3D800F

Grade	Melt Flow	Flexural Modulus	Charpy
	ISO 1133 [g/10'] 230°C/2,16Kg	ISO 178 Mpa	ISO 179 [kJ/m <sup>2</sup> ] 23°C notched
P3D800F	20	950	44
P3D800F (x-y)	20	800	66
P3D800F (z)	20	600	4

The **Repsol P3D800F** is a nucleated grade with excellent impact resistance designed for FDM technology. It provides high stability to the constructed parts such as:

- Automotive: prototypes, aesthetic parts, specific tools, etc.
- Aerospace: prototypes
- Technical components: toys, textiles, footwear, jewelery, leisure, etc.



**Repsol P3D800F** is specially indicated when main requirement is mechanical strength with good processability and aesthetic properties



# Repsol P3D750FM



Repsol P3D800F 

 Repsol P3D800FG

# 3D printing FFF and FGF Technology

## Repsol P3D750FM



Grade	Melt Flow	Flexural Modulus	Charpy
	ISO 1133 [g/10'] 230°C/2,16Kg	ISO 178 Mpa	ISO 179 [kJ/m <sup>2</sup> ] 23°C notched
P3D750FM	16	900	61
P3D750FM [x-y]	16	900	61
P3D750FM [z]	16	425	4

Repsol P3D750FM with mineral fillers reinforced and medium melt flow rate shows excellent stiffness/impact balance and good processability and stability.



Repsol P3D750FM is suitable for prototypes, tools, toys, jewelry and leisure



Repsol P3D800FG



# 3D printing FFF and FGF Technology

Repsol P3D800FG

Grade	Melt Flow ISO 1133 [g/10'] 230°C/2,16Kg	Flexural Modulus ISO 178 Mpa	Charpy ISO 179 [kJ/m <sup>2</sup> ] 23°C notched
P3D800FG	20	800	60
P3D800FG (x-y)	20	600	52
P3D800FG (z)	20	450	4

The **Repsol P3D800FG** grade is a high-performance thermoplastic with a **fluidity of 20 g/10'**, low density, high elasticity and high resistance to fatigue.

- Excellent flow properties
- Excellent processability and stability
- High impact strength
- High stiffness

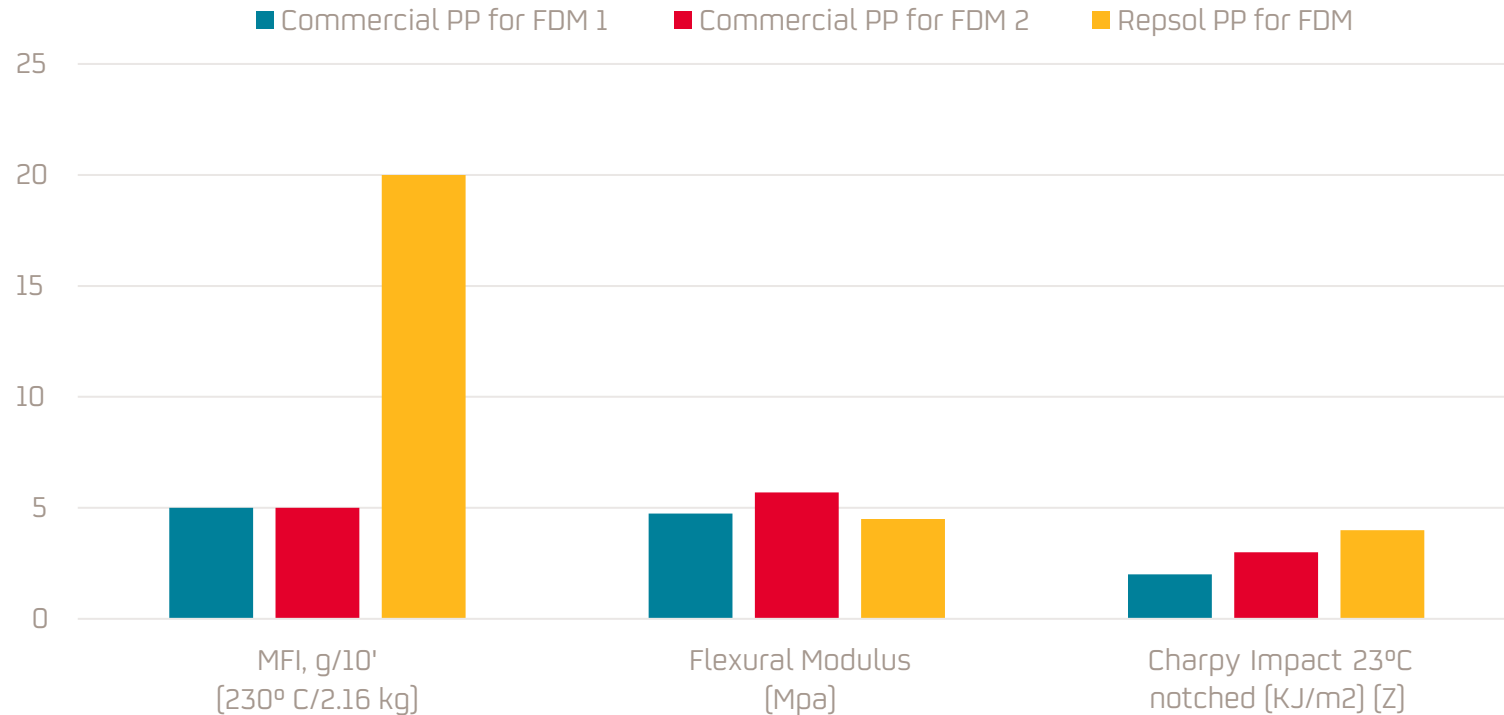


The **Repsol P3D800FG** mechanical properties make it an ideal material for 3D-printing applications which have to endure high stress or strain



# 3D printing FFF and FGF Technology

Repsol P3D800FG



Applications:

- Prototypes
- Technical components
- Specific tools
- Toys

The P3D800FG grade is a **high-performance** with a **fluidity of 20 g/10'**, low density, high elasticity and high resistance to fatigue

April 2021

## Chemicals Customer Care

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*Results Orientation*

*Collaboration*

*Inspiring Leadership*

*Accountability*

*Intrapreneurship*

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