


Description of product	rPP based automotive central console bracket (interiors) by injection moulding	
Photo of product		
Origin of recycled content	<ul style="list-style-type: none"> • Italy • Bottles, containers, caps, 	
% recycled content	100% recycled PP	
Additives and recipe	PP - (T15+GF15) + 3% Kraton G1657V + 3% IntuneD5545 <ul style="list-style-type: none"> • Talc: H4 IMIFABI • Glass fibers: Lanxess CS7952 	
Physical properties	Density	1,12 g/cm ³
	Tensile Modulus	3530 MPa
	Tensile Yield Stress	34,5 MPa
	Tensile Strain at yield Stress	3,2%
	Tensile Stress at break	29.4 MPa
	Tensile Strain at break	3,8%
	IZOD Impact Strength, notched (23 °C) – Fracture type	8,7 kJ/m ² - C
	IZOD Impact Strength, unnotched (23 °C) – Fracture type	19,5 kJ/m ² - C
Does the product meet user specification?	The product meets the minimum general requirements. The tensile modulus is slightly lower than the virgin counterpart is, but all other values are in line with requirements. The mechanical properties are sufficient to pass the design validation of component of FCA standard. The same approach was used to compound other FCA grades with the same results allowing wider application range.	

Description of product	rPET based automotive bracket by injection moulding for exterior and engine compartment	
Photo of product		
Origin of recycled content	<ul style="list-style-type: none"> • Italy • Bottles 	
% recycled content	100% recycled PET	
Additives and recipe	<p>PET + 1%P130 + 0.5%P252 + 20%GF + 5% Lotader AX8900</p> <ul style="list-style-type: none"> • Bruggolen P130 (processing aid) - Brüggemann • Bruggolen P252 (nucleating agent) - Brüggemann • Glass fibers - Lanxess CS 7967 (26/1493) D • LOTADER AX8900 (a random terpolymer of ethylene, acrylic ester and glycidyl methacrylate-24% acrylate) 	
Physical properties	Density	1,52 g/cm ³
	Tensile Modulus	6896 MPa
	Tensile Yield Stress	102 MPa
	Tensile Strain at yield Stress	2,2%
	Tensile Stress at break	100 MPa
	Tensile Strain at break	2,5%
	IZOD Impact Strength, notched (23 °C) – Fracture type	8,4 kJ/m ² - C
	IZOD Impact Strength, unnotched (23 °C) – Fracture type	40,3 kJ/m ² - C
HDT 1,8 Mpa	172 °C	
Does the product meet user specification?	The product meets in general the minimum general requirements. The IZOD impact is still lower than the virgin counterpart is, but all other values are in line with requirements. The mechanical properties are sufficient to pass the design validation of component of FCA standard.	

Heat Deflection Temperature (HDT). The results of the heat deflection temperature test of the injected formulation are reported in table 19. As expected, the use of the impact modifiers shows a decrease in thermal resistance.

Material	HDT (°C) 1,8 Mpa	
	Media	DevSt
PET + 1%P130 + 0.5%P252 + 15%GF	159.8	(1.7)
PET + 1%P130 + 0.5%P252 + 20%GF	191.9	(3.1)
PET + 1%P130 + 0.5%P252 + 25%GF	201.4	(1.7)
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Elvaloy AC12024S	186.9	(0.8)
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Lotryl 29MA03	176.9	(1.1)
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Lotader AX8900	174.1	(0.9)
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Surlyn 8940	171.5	(2.1)

Impact properties. The obtained results are reported in table 22 and 23, which report the unnotched and notched values, respectively. As it is possible to observe, the use of LOTADER AX8900 seems to have the strongest effect.

Material	Notch type	IZOD Impact Strength, unnotched (23 °C) (KJ/m2)		Type of Fracture
		Avg	StDev	
PET + 1%P130 + 0.5%P252 + 15%GF	-	21.7	3.2	C
PET + 1%P130 + 0.5%P252 + 20%GF	-	26.4	1.8	C
PET + 1%P130 + 0.5%P252 + 25%GF	-	31.8	2.1	C
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Elvaloy AC12024S	-	29.6	1.8	C
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Lotryl 29MA03	-	32.5	3.2	C
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Lotader AX8900	-	40.3	4.2	C
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Surlyn 8940	-	28.8	2.0	C

Material	Notch type	IZOD Impact Strength, notched (23 °C) (KJ/m2)		Type of Fracture
		Avg	StDev	
PET + 1%P130 + 0.5%P252 + 15%GF	A	4.5	0.7	C
PET + 1%P130 + 0.5%P252 + 20%GF	A	5.2	1.4	C
PET + 1%P130 + 0.5%P252 + 25%GF	A	7.5	0.9	C
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Elvaloy AC12024S	A	8.1	0.8	C
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Lotryl 29MA03	A	8.1	1.1	C
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Lotader AX8900	A	8.4	0.7	C
PET + 1%P130 + 0.5%P252 + 20%GF + 5% Surlyn 8940	A	5.6	1.3	C