



TOTAL

COMMITTED TO BETTER ENERGY



HOUSEHOLD & CHEMICALS

PP & PE PRODUCT RANGES

REQUIREMENTS FOR HDPE BLOW MOULDING

- **Processability**

- Sufficient melt strength (parison)
- High Line output
- Low sagging during shaping
- Even Wall thickness distribution

- **Chemical resistance**

- High Environmental Stress Crack Resistance (ESCR)
- Barrier Properties (Oxygen, CO₂, Oil)

- **Mechanical performance**

- High stiffness
- Good Impact properties

- **Optical performance**

- Good surface appearance
- High transparency,
- No frozen-in stress

CONSUMER PACKAGING

Lubricants



5802
rPE6314

Household Products



5502
5802
rPE6314

Cosmetics



5502
rPE6314

Small jerry cans



5802
51090
53090
rPE6314

HDPE 5520

<u>TYPE</u>	<u>DENSITY</u>	<u>MI2</u>	<u>HLM1</u>	<u>ESCR</u>	<u>FLEX MOD</u>
5502	0.954 g/cm ³	0.30g/10min	22 g/10min	60h	1200 MPa

Bottles and medium-size containers for **solids and liquids** (liquid food, household products, cleaning liquids, detergents, etc ...)

- General multi purpose HDPE materials
- Very easy processing on all equipments
- Nice surface finish
- Food approved
- ESCR suitable for majority of applications



HDPE 5802

<u>TYPE</u>	<u>DENSITY</u>	<u>MI2</u>	<u>HLMI</u>	<u>ESCR</u>	<u>FLEX MOD</u>
5802	0.957 g/cm ³	0.25g/10min	23 g/10min	40h	1500 MPa

Bottles and medium-size containers needing a good compromise rigidity / ESCR and a very high impact resistance

- Performances level close to a semi high molecular weight HDPE
- Easy processing
- Excellent impact resistance (up to 50 L jerry cans)
- Very nice surface finish
- Food approved



RECYCLED HDPE

Total is responding to customer demands and increasing regulatory pressure by developing ready-to-use post-consumer rPE compounds for blow moulding.

<u>TYPE</u>	<u>DENSITY</u>	<u>MI2</u>	<u>HLMI</u>	<u>ESCR</u>
rPE6314	0.955 g/cm ³	0.30g/10min	30 g/10min	>300h

rPE 6314 is a high density polyethylene, containing **50% of recycled HDPE originating from post consumer household waste** collected in Western European countries.

This product serves household and industrial applications.

Main benefits :

- Product quality consistency
- Optimized processing
- Excellent chemical resistance
- Mechanical properties equivalent to virgin HDPE



POLYPROPYLENE IN BLOW MOULDING

- Homopolymer
 - Excellent stiffness
 - Best heat resistance (hot filling)
 - Best scratch resistance
- Random Copolymer => Most used
 - High transparency if clarified & excellent gloss
 - Good impact
 - Good compromise melt strength & processability
- Impact Copolymer
 - Best impact resistance
 - High stiffness
 - Opaque



PP GRADES FOR EXTRUSION BLOW MOULDING

Grade	MFI g/10'	Flex. Modulus MPa	IZOD notched, 23°C, kJ/m ²	
PPH 3060	1.8	1300	6	-
PPC 2660	0.8	1100	>50	-
PPC 3060	1.3	1200	>50	-
PPR 3221	1.8	900	22	clarified
PPR 3260	1.8	1000	7.5	-

RPP – MECHANICAL RECYCLING

A broad rPP portfolio, for blow-moulding, injection moulding and thermoforming.

	Virgin Ref.	MFI (g/10')	Flex Modulus (MPa)	CharpyNotched at 23°C (kJ/m ²)	CharpyNotched at -20°C (kJ/m ²)	ca. RAL COLOR
HOMOPOLYMERS						
RPPH03GR	PPH 4060	3	1400	7	3	7011
RPPH12GR	PPH 7060	14	1450	5	---	7011
RPPH35GR	PPH 10042	35	1400	4	---	7011
IMPACTCOPOLYMERS						
RPPC01GR	PPC 3640	1,3	1200	50	6	7011
RPPC02GR	PPC 3650	2	1150	40	6	7011
RPPC03GR	PPC 4640	3	1300	7	3	7011
RPPC04GR	PPC 4640	4	1450	8	3	7005
RPPC06GR	PPC 5660	6	1600	8	4	7011
RPPC08GR	PPC 6742	8	1450	7	3	7005
RPPC16GR	PPC 7642	16	1250	8	4	7042
RPPC35GR	PPC 10642	35	1400	6	3	7042

TOTAL'S AMBITION FOR POLYMERS

**30% RECYCLED
POLYMERS
SOLD BY 2030***

(^{*} P. Pouyanné, CEO Total at Investor Day
2019)

**= 1 MILLION TONS RECYCLED POLYMERS
SOLD PER YEAR IN 2030**



MONO-MATERIAL SOLUTIONS FOR HOUSEHOLD AND CHEMICALS

Bottles & caps

Total is proposing a wide portfolio of resins for caps, both in PP and HDPE, supporting the design of **monomaterial bottles + cap** packaging

