Polypropylene for Rigid Packaging Applications

Braskem

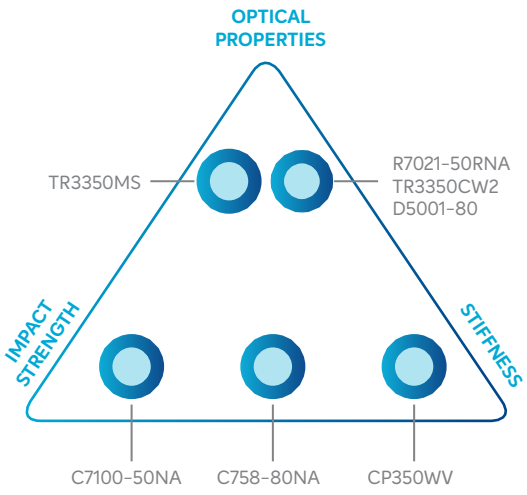
Thin Wall
Injection Molding

Braskem targets joint development programs with our clients that enable them to meet and exceed stringent market demands.

New Trend: Thin Wall Injection Molded Packaging

Some of the potential applications that thin wall packaging can be used for include: pill vials, ice cream tubes, deli containers, ready-made packaged foods, and butter or ice cream tubs.

Benefits in these applications are reduced source consumption, shorter cycle times, high clarity, and good organoleptics.



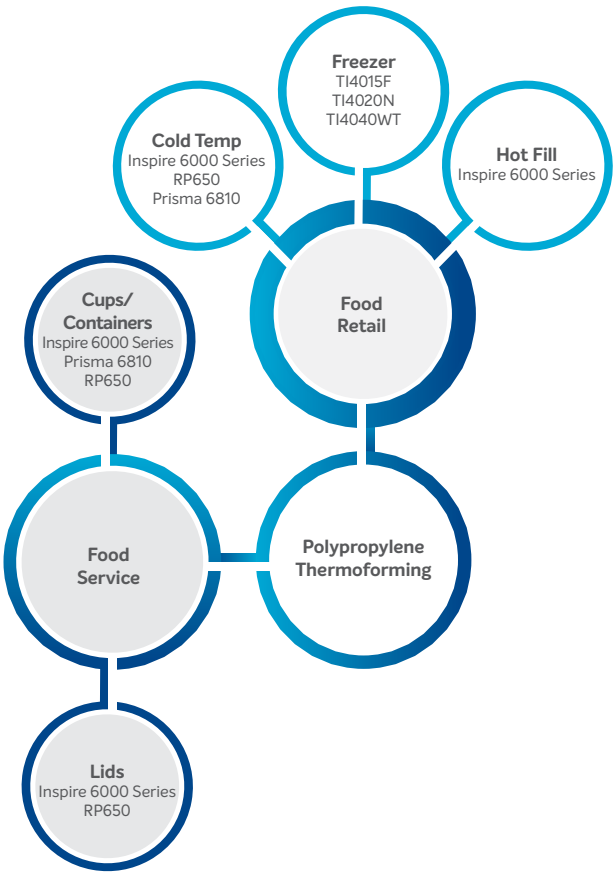
Family	Grade	MFR (g/10min)	Flex Mod (Kpsi)	N. Izod (ft-lb/in)
HOMO	CP350WV	35	240	0.5
HECO	C7100-50NA	50	140	2.3
	TI6550WV	55	190	1.8
	TI6800WV	80	155	2.3
	C758-80NA	80	200	1.4
RACO	TR3350CW2	31	155	1.0
	RP250	35	170	0.9
	TR3350MS	35	125	1.0
	R7021-50RNA	50	155	1.0
	D5001-80	80	150	0.9

Thermoformed packaging plays a vital role in our daily lives, protecting foods such as dairy, shelf stable, and frozen products.

Thermoforming

Maintaining the quality and flavor of foods, while providing safe, lightweight packaging that offers freezer to microwave ease-of-use and convenience are essential requirements.

Braskem America has demonstrated its commitment to the thermoforming market with a wide range of polypropylene resins offering exceptional stiffness, high heat distortion resistance, and lightweighting potential without sacrificing sidewall stiffness.



Inventory Management Simplification

Braskem thermoforming grades allow clients to utilize a single resin for a wide range of applications that require varying levels of stiffness, clarity, or impact, creating a simplified inventory approach.

- Single grade inventory
- Reduced storage complexity
- Simple order processing
- Blends well with other resins

Performance Enhancements

In thermoforming applications, Braskem resins supply a balance of performance characteristics:

- Increased melt strength resulting in more uniform wall thickness distribution
- Opportunities for downgauging and part weight reduction
- Improved impact properties
- Outstanding stiffness, providing increased top load properties
- Exceptional aesthetics and color
- Opportunities for intermaterial replacement

Family	Grade	MFR (g/10min)	Flex Mod (Kpsi)	N. Izod (ft-lb/in)	Features and Benefits
HOMO	**Inspire 6021N**	2.0	255	0.6	High performance nucleated homopolymer with good physical properties
	Inspire 6023N	2.0	255	0.6	High performance nucleated homopolymer with good optical and physical properties
	Inspire 6025N	2.5	300	0.7	High performance, high crystalline homopolymer with exceptional stiffness and good optical properties
HECO	**TI4015F**	1.6	175	NB	Superior balance of stiffness and impact strength
	Prisma 6810	2.0	190	NB	Next generation clear impact copolymer designed for a great balance of stiffness, toughness, and clarity
	TI4020N	2.0	220	NB	Extra high Izod impact, excellent low temperature drop impact, good organoleptic properties, nucleated
	TI6035NB	3.8	140	NB	Extra high Izod impact, superior low temperature drop impact
	TI4040WT	4.0	205	3.5	Superior drop impact at refrigeration temperature, very high flexural modulus, nucleated, good mold release
RACO	**RP650**	2.0	170	1.2	High flexural modulus, next generation clarifier providing superior aesthetics and enhanced optical properties

Braskem understands the importance of a competitive and dependable supply of high quality products for the future.

SURPASSING INDUSTRY STANDARDS WITH **HIGH PERFORMANCE, SUSTAINABLE POLYPROPYLENE**

Braskem's broad polypropylene (PP) portfolio meets the needs of today's sophisticated rigid packaging applications. Benefits from the proven performance that helps our clients add value to a wide range of innovative downstream solutions include:

- Reduced wall thickness enables use of less raw material in achieving lightweighting solutions and supporting sustainability initiatives
- Unique balance of stiffness, toughness, and flowability offers exceptional competitive advantages for multiple end uses and objectives
- Breadth of portfolio allows clients to deliver on wide reaching product development initiatives

Marcus Hook, Pennsylvania

ACCELERATING **INNOVATION** AND **SPEED TO MARKET**

Multiple technologically integrated centers in the United States, Brazil and Germany employ more than 300 specialized professionals who collaborate with clients on joint product and applications development.

These state-of-the-art facilities feature:

- On-site specialized analytical labs
- Pilot-scale equipment that replicates client production environments for true-to-life polymer testing
- Compounding, injection molding, sheet, foaming, and thermoforming applications equipment that create innovative solutions to meet client needs

CLIENT DRIVEN INNOVATIVE FOCUS

Applications often come along that require new levels of performance. Braskem has the capability to provide the technical expertise and innovation that meets your product differentiation requirements.

RELIABLE, RESPONSIVE **SERVICE AND SUPPLY**

We focus on being responsive to our North American clients' needs with service levels and supply security unmatched by the competition. At the heart of this is geographic diversity that provides reliable sourcing, with production facilities in Pennsylvania, West Virginia, and Texas.

Neal, West Virginia

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Every day, Braskem's 8,000 team members work to improve people's lives through sustainable solutions in chemistry and plastics and engage with partners throughout the value chain to advance the circular economy.

With 41 industrial units in Brazil, United States, Mexico and Germany, net revenue of R$58 billion (US$15.8 billion) and exports to around 100 countries, Braskem produces annually over 20 million tons of plastic resins and chemical products.

Braskem America is an indirect wholly owned subsidiary of Braskem S.A. headquartered in Philadelphia. The company is the leading producer of polypropylene in the United States, with six production plants located in Texas, Pennsylvania and West Virginia, an Innovation and Technology Center in Pittsburgh, and a new operation in Boston focused on leveraging groundbreaking developments in biotechnology and advanced materials. For more information, visit www.braskem.com/usa.

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