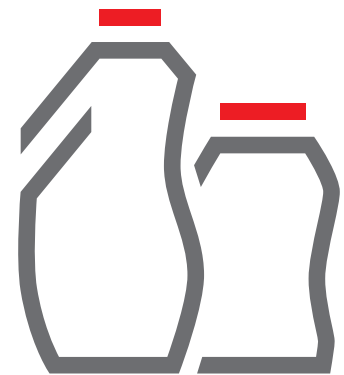


► **Polypropylene For Rigid Packaging Applications**

Braskem

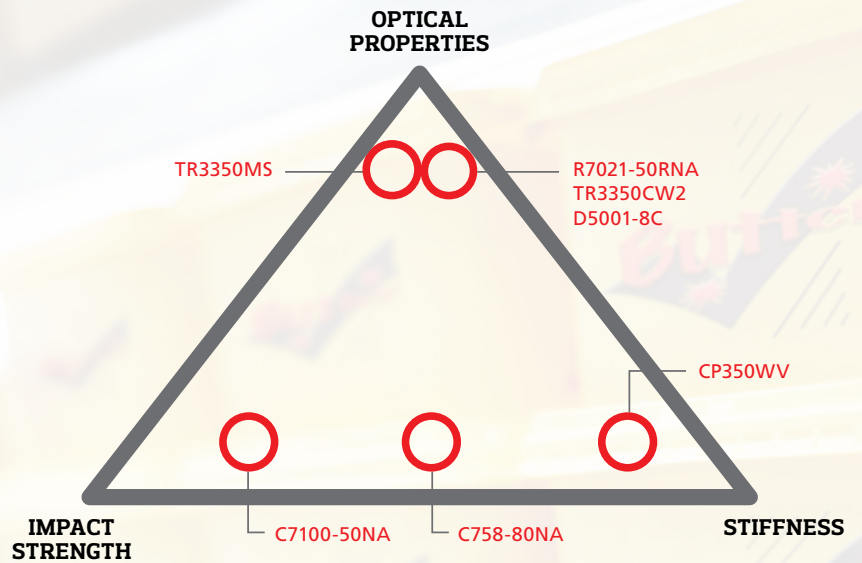
▶ THIN WALL INJECTION MOLDING



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
	T16550WV	55	190	1.8
	T16800WV	80	155	2.3
	C758-80NA	80	200	1.4
RACO	TR3350CW2	31	155	1.0
	TR3350MS	35	125	1.0
	R7021-50RNA	50	155	1.0
	D5001-80	80	150	0.9

A New Trend: Thin Wall Packaging

- Braskem targets joint development programs with our clients that enable them to meet and exceed stringent market demands
- 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 sour cream tubs
- Benefits in these applications are reduced source consumption, shorter cycle times, high clarity, and good organoleptics

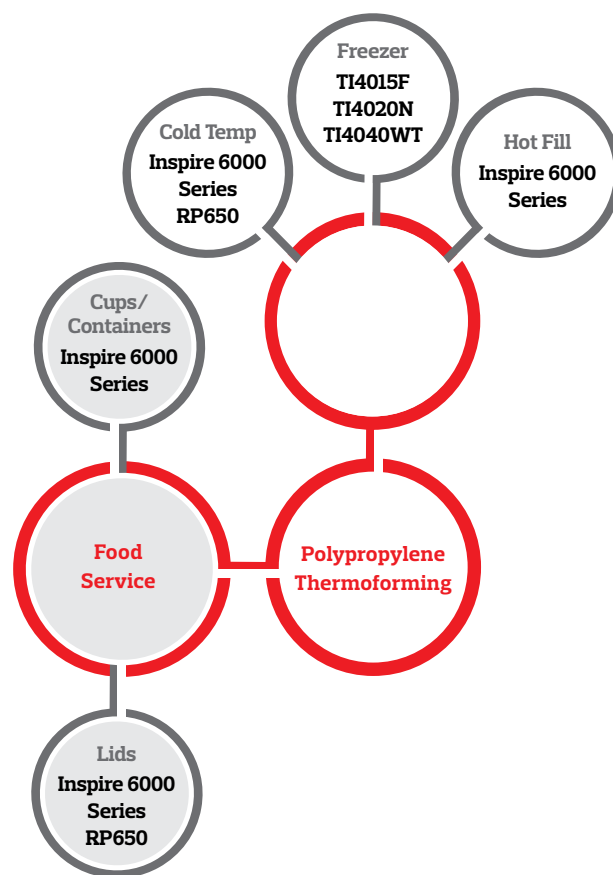


► THERMOFORMING

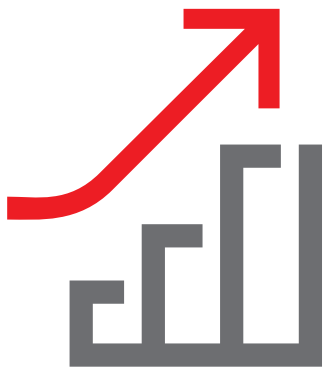
Broad Portfolio of Thermoforming Grades

Thermoformed packaging plays a vital role in our daily lives, protecting foods such as dairy, shelf-stable, and frozen products. Maintaining the quality and flavor of foods, while providing safe, light-weight 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 light-weighting potential without sacrificing sidewall stiffness. Grades are microwaveable, retortable, and FDA compliant.



Family	Grade	MFR (g/10min)	Flex Mod (Kpsi)	N. Izod (ft-lb/in)	Features and Benefits
Homopolymer	Inspire 6021N	2.0	255	0.6	Next generation nucleated homopolymer that offers a broad processing window with good physical properties
	Inspire 6022N	2.0	255	0.6	Next generation nucleated homopolymer that offers a broad processing window with good optical and physical properties
	Inspire 6025N	2.5	300	0.7	Next generation nucleated homopolymer that offers a broad processing window with superior flexural modulus and good optical properties
Impact Copolymer	TI4015F	1.6	175	NB	Superior balance of stiffness and impact strength
	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
Random Copolymer	RP650	2.0	170	1.2	High Flexural modulus, next generation clarifier providing superior aesthetics and enhanced optical properties



Inventory Management Simplification

Braskem thermoforming grades allows 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
- Simple order processing
- Reduced storage complexity
- 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 down-gauging and part weight reduction
- Improved impact properties
- Outstanding stiffness, providing increased top load properties
- Exceptional aesthetics and color
- Opportunities for inter-material replacement





▶ Accelerating Innovation and Speed to Market

Technology centers located in United States, Brazil and Germany employ more than 240 specialized professionals who work closely with customers on joint product and application development. These state-of-the-art facilities feature:

- Pilot-scale equipment that replicates customer production environments for more true-to-life polymer testing
- On-site analytical labs that provide tools to understand performance requirements
- Catalyst labs to develop experimental polymers with enhanced physical properties
- Compounding and applications operations that create innovative solutions to meet customer needs

▶ Customer Driven Innovation

We understand the importance of a competitive and dependable supply of high-quality products. 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.



Marcus Hook, Pennsylvania

▶ Surpassing Industry Standards with High Performance, Sustainable Polypropylene

Braskem's broad polypropylene 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 light-weighting 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



▶ Reliable, Responsive Service and Supply

We focus on being responsive to our North American customers' 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

Braskem is one of the world's leading plastics and chemical companies with 40 industrial plants in Brazil, the United States, Germany and Mexico – the company's newest industrial complex is a joint venture with Idesa, which represents a \$5.2 billion investment.

Braskem is the largest producer of thermoplastic resins in the Americas and the leading producer of biopolymers in the world, creating more environmental-friendly, intelligent and sustainable solutions through chemicals and plastics. Known for innovative solutions such as I'm green Polyethylene™ made from renewable sugarcane and UTEC,® the company's own trademarked Ultra High Molecular Weight Polyethylene for high performance applications, Braskem's products and technologies enable the automotive, packaging, healthcare, and construction industries to produce goods that enhance quality of life for people around the world.

Braskem America is a wholly owned subsidiary of Braskem S.A. headquartered in Philadelphia. The company is the leading producer of polypropylene in the United States, with five production plants located in Texas, Pennsylvania and West Virginia, and an Innovation and Technology Center in Pittsburgh.