Polypropylene **for automotive and compounding**

Driving new levels of performance and innovation

Braskem

High perfomance, **polypropylene**

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

- Reduced wall thickness enables using less raw material in achieving lightweighting solutions that lower transportation costs, improve fuel economy, and reduce emissions.
- Unique balance of stiffness, toughness, and flowability offer exceptional competitive advantages for multiple end users.
- Joint technology and innovation platforms that enable our clients to meet and exceed stringent market demands.

Braskem

We are developing the next generation of performance PP impact copolymers that exploit recent advances in catalyst and process technology, combined with polymer science and engineering innovation. Our solutions are supporting our customers to achieve their targets on sustainability an GHG emissions.*

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:

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

Client-driven innovative focus

We understand the importance of a competitive and dependable supply of high quality products. Applications often require new levels of performance. Braskem has the capability to provide technical expertise and innovation that meets your product differentiation requirements.

Reliable, responsive service and supply

We are focused on being responsive to the needs of our global clients with service levels and supply security unmatched by the competition. At the heart of this responsiveness is geographic diversity that provides reliable sourcing, with production facilities in North America, Germany, and Brazil.

High Impact PP Copolymers for your global compounds with a broad range of melt flow rates

Braskem's high toughness & high flow impact copolymers allow producers to explore the production of compounds that were previously unachievable. These impact copolymers allow a variation of high toughness, stiffness and high melt flow and give flexibility to your compounds. Benefits include:

- Improved toughness and flowability for your compounds
- Improved impact properties for high mineral filled compounds
- Higher toughness for FR compounds
- Best fit for your PA/PP Blends

Braskems high impact copolymers are globally available.

CP396XPD CP295D TI8300CD

Global offer of High Stiffness PP Homopolymers

Developed for the automotive compounding market, our high crystallinity homopolymers provide premium levels of stiffness, flowability, compounding flexibility, and performance:

- Wide range of melt flow rates
- Enabling higher HDT performance
- High Crystallinity

F030HC F080HC F350HC F1000HC2

Low Emission, Low Fogging, High Meltflow PP Impact Copolymers

Braskem developed low emission impact copolymers that fit to the automotive requirements of VDA277 and VDA278.

With this latest development of CG440NV (MFR 44) you can develop low emission compounds for the automotive industry with a broad MFR variation.

To achieve low emissions, there is

- no need for specialized compounding lines;
- no need for purging after production;
- no need to add expensive additives in your formulation.

HOMO

Product	Melt Flow Rate [g/10 min]	Flexural Modulus [MPA]	Strenght at Yield [MPa]	Charpy Notched at 23 °C [kJ/m²]
ISO METHOD	ISO 1133	ISO 178	ISO 527-1	ISO 179-1/1EA
Extrusion				
F008F	0.8	1310	36	
Inspire® 215	2.1	1700	36	5
Stiffness				
F030HC	3.3	2150	40	3.5
F080HC	8	1900	37	3.5
F350HC	35	2100	40	2.5
F1000HC2	110	2200	41	1.5
General				
FT120WV	12	1850	39	4
HSP165G	16.5	1500	34	3.5
HSP250NA	25	1650	36	3
H734-52RNA	52	1700	35	2.5

ICP

Product	Melt Flow Rate [g/10 min]	Flexural Modulus [MPA]	Charpy Notched at 23 °C [kJ/m²]	Charpy Impact Notched at -20 °C [kJ/m²]
ISO METHOD	ISO 1133	ISO 178	ISO 179-1/1EA	ISO 179-1/1EA
Extrusion				
CSP030N	0.3	1300	70	6
Inspire® 118	0.3	1750	60	2.5
Inspire® 114EU	0.5	1500	65	4.5
High Impact				
CP396XPD	11	1000	60	10
CP295D	20	800	60	8
TI8300CD	30	1000	60	6.5
High Stiffness				
TI2150C	15	1620	7.2	2.9
CG350N	35	1500	7.2	3.5
TI2900C	110	1600	3.9	2.1
Low Emission				
CG150V	14.5	1100	11	6
CG440NV	44	1450	7	4
High Meltflow				
CD700NAQ	70	1200	8	3.5
CG700NA	70	1350	6	3.5
C7069-100NA	100	1400	4	2.5
General				
C715-12NHP	12	1450	10	4.5
C706-21NAHP	21	1450	8	4.5
C7082-30NA	30	1300	8.5	5
C705-44NAHP	44	1450	7	4

Sustainable solutions for you

Braskem offers a huge variety of sustainable products for compounds. Our portfolio ranges from grades made of bio-based material to recycled material. The material is certified and we offer a service to provide you with a life cycle analysis.

Our commercial team will support you in finding the right sustainable material for your needs.

I'm green BIO-BASED

BIO-BASED RAW MATERIAL

- HDPE, LDPE, LLDPE and EVA
- Blow molding, injection molding & extrusion
- Can be in **contact with food***
- Measurable **bio-based content**
- **Captures CO_2** from the environment
- Tackling **climate change**

ISCC International Sustainability & Carbon Certification

MASS BALANCE CERTIFIED BIO-ATTRIBUTED

- PP
- Blow molding, injection molding & extrusion
- Can be in **contact with food***
- **ISCC** mass balance certified bio-based
- Contributes to reduce **dependance on fossil feedstock**
- **Reduced carbon footprint**

WENEW

FOSTERING THE TRANSITION TO A CIRCULAR ECONOMY

ISCC International Sustainability & Carbon Certification

RECYCLED RESINS

- rHDPE, rLDPE, rPP
- Blow molding, injection molding & extrusion
- Made from **post-consumer recycled plastic**

MASS BALANCE CERTIFIED RECYCLED

- PE, HPP, RPP and ICP
- Blow molding, injection molding & extrusion
- Can be in **contact with food***
- **ISCC** mass balance certified recycled

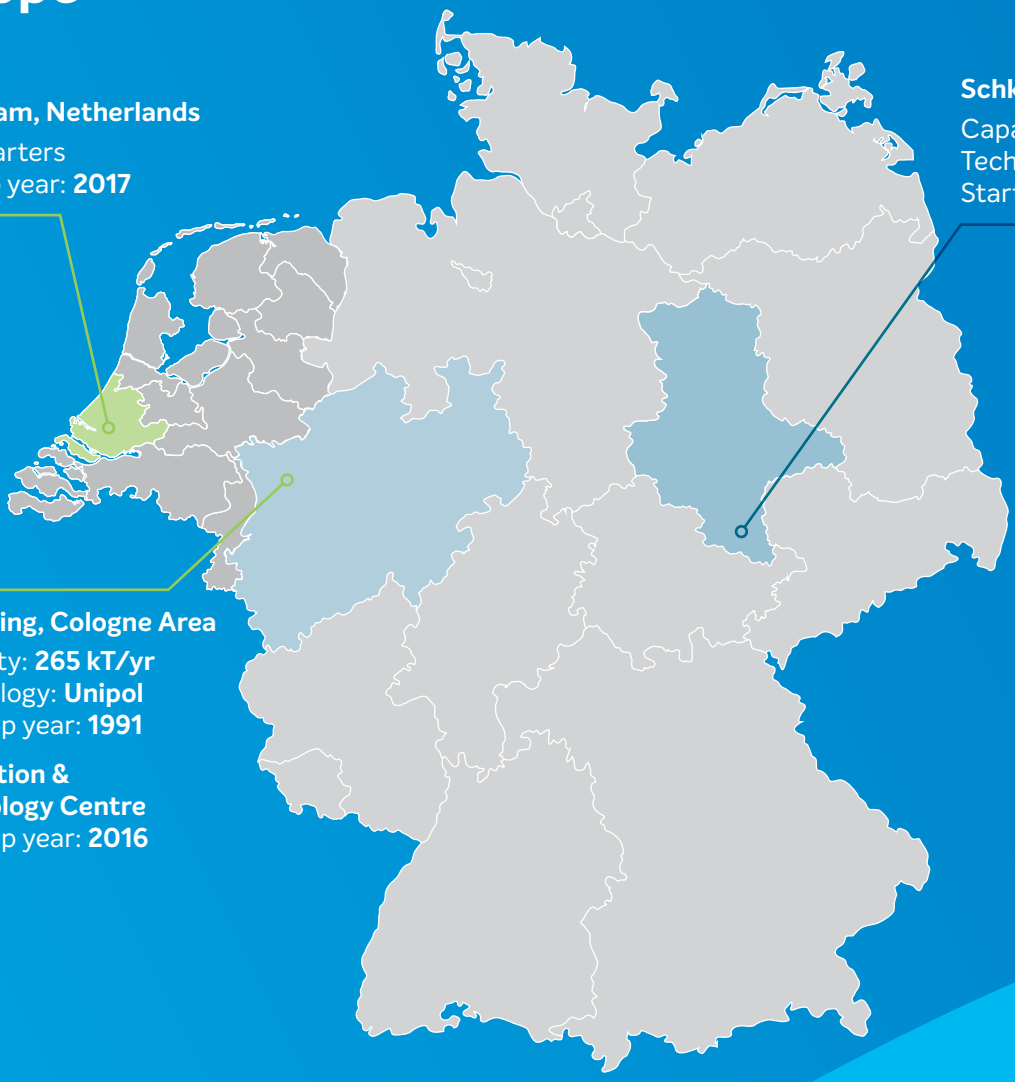
LOW CARBON SOLUTIONS

- rHDPE, rPP
- Blow molding, injection molding & extrusion
- Measurable **bio-based content**

Braskem can offer all PP products with an ISCC PLUS certificate.

*These applications are merely exemplary. The possibility of using this product for a specific purpose may vary according to the jurisdiction and should be analyzed by the interested party. Braskem does not warrant the suitability of the product for the intended use when combined with other substances. Please check the RIS or contact Braskem for specific regulatory information.

Europe



Rotterdam, Netherlands
Headquarters
Start-up year: **2017**

Schkopau, Leipzig Area
Capacity: **360 kT/yr**
Technology: **Spheripol**
Start-up year: **1998**

Wesseling, Cologne Area
Capacity: **265 kT/yr**
Technology: **Unipol**
Start-up year: **1991**

Innovation & Technology Centre
Start-up year: **2016**

Braskem in **numbers**

297 Team Members

Warehouses
Europe

Antwerp | **Belgium**
Murcia | **Spain**
Bologna | **Italy**
Rotterdam | **The Netherlands**

2 Industrial Units: Wesseling and Schkopau (Germany)

PRODUCTION CAPACITY OF **625** KT/Y of **PP**

Global presence

With a global vision of the future, oriented toward people and sustainability, Braskem is engaged in contributing to the value chain in order to strengthen the Circular Economy. Its more than 8.000 team members are dedicated to improving people's lives through sustainable solutions in chemicals and plastics. With its corporate DNA rooted in innovation, Braskem offers a comprehensive portfolio of plastic resins and chemical products for diverse industries, such as food packaging, construction, manufacturing, automotive, agribusiness, health and hygiene, and more. Braskem is globally headquartered in Brazil and EMEA head office is based in Rotterdam – NL. In total, there are more than 40 industrial units in Brazil, the United States, Mexico, and Germany, exporting its products to clients in over 80 countries.

PRODUCTION OF OVER **20** MM TONS/YEAR of thermoplastic resins & other chemicals products

8,353 Team Members

40 industrial units:
29 plants in Brazil
5 plants in the United States
2 plants in Germany
4 plants in Mexico

Braskem