Why Multiple PP Grades for Blow Molding?

Great question! The reason Braskem (and other PP producers) offer several grades of homopolymer and heterophasic copolymer polypropylene (PP) for blow molding is that blow molding applications are highly diverse, and each grade is tailored to balance processability, mechanical performance, and end-use requirements. Let's break it down:

🔑 Why Multiple Grades Exist

1. Different Processing Needs

- Melt Flow Index (MFI):
  - High MFI grades → easier flow, faster cycle times, suited for thin-walled or complex shapes.
  - Low MFI grades → higher viscosity, better parison stability, suited for large containers.
- Blow molding requires control over parison strength (the extruded tube before inflation). Different grades ensure stability for small bottles vs. large industrial drums.

2. Mechanical Property Requirements

- Homopolymer PP (HOMO):
  - Offers high stiffness and rigidity, good for containers that need dimensional stability (e.g., rigid bottles, technical packaging).
  - Multiple grades allow fine-tuning stiffness vs. processability.
- Heterophasic Copolymer PP (HECO):
  - Provides impact resistance, especially at low temperatures.
  - Different grades balance toughness with stiffness depending on whether the container must resist drops, stacking, or cold-chain logistics.

3. Application Diversity

- Small packaging (cosmetics, food bottles): Needs clarity, rigidity, and fast cycle times → homopolymer grades.
- Large industrial containers (jerrycans, drums): Require toughness, drop resistance, and environmental stress crack resistance → heterophasic copolymer grades.
- Automotive blow-molded parts (ducts, reservoirs): Need impact resistance and durability → specialized heterophasic copolymer grades.

4. Additive & Performance Packages

- Grades differ in additive stabilization (UV resistance, antistatic, slip agents) depending on whether the container is for outdoor use, food contact, or industrial chemicals.
- Some grades are optimized for pigment dispersion or recycling compatibility.

⚖️ Summary

- Homopolymer PP grades → chosen for rigidity, productivity, and clarity.
- Heterophasic copolymer PP grades → chosen for impact strength, toughness, and

durability.
- Multiple grades exist because blow molding applications range from tiny cosmetic bottles to large industrial drums, each requiring a different balance of flowability, stiffness, and toughness.

👉 If you'd like, I can prepare a comparison chart of Braskem's blow molding PP grades (with melt flow, impact strength, and typical applications) so you can see how each one is positioned in the portfolio.