

Amazingly eye-catching appliances

Energy lives here™

Challenge reality and rethink what's possible in appliance appeal.



- **Replacing standard ICP**
 - 20% higher gloss
 - 10% improved stiffness
- **Replacing ABS**
 - 20% cost savings¹
 - 14% lower density for lighter weight parts

With superior gloss and stiffness compared to standard impact copolymers (ICP), Achieve™ Advanced polypropylene (PP) allows brand owners to economically produce amazingly eye-catching appliances. It is perfect for upgrading existing PP solutions or replacing over-engineered acrylonitrile butadiene styrene (ABS).

Create new appliance designs

Through collaboration, Achieve Advanced PP enables customers to **create glossier and lighter appliance designs** - that can **do more with less**. Achieve Advanced PP is widely recyclable and can expand end-of-life options.

Achieve Advanced PP can be used in appliance parts such as:

- **Major appliances** - appearance parts in washing machines and refrigerators
- **Small appliances** - appearance parts in vacuums, electric fans and garment steamers

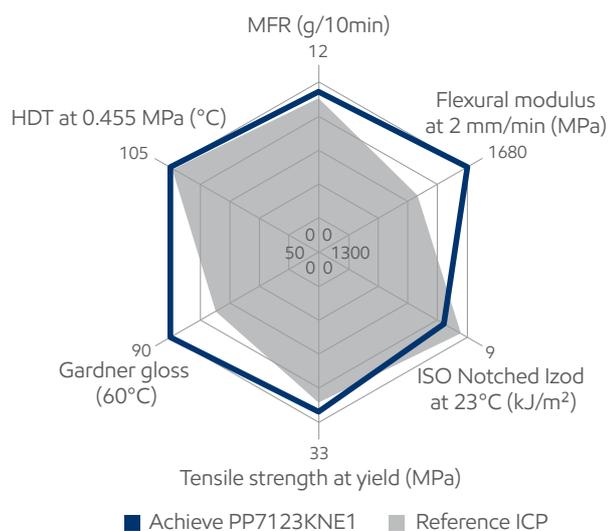
With more finely dispersed rubber, it enables manufacturers to produce appliance parts with gloss levels 20 percent higher than standard ICP and comparable to ABS. Capitalizing on its gloss and stiffness, designers can deliver parts with high-end product appearance and performance.

Cost-saving solutions

Achieve Advanced PP7123KNE1 is a perfect replacement for over-engineered ABS parts, delivering savings through reduced weight, lower raw material costs, and improved processing energy consumption.

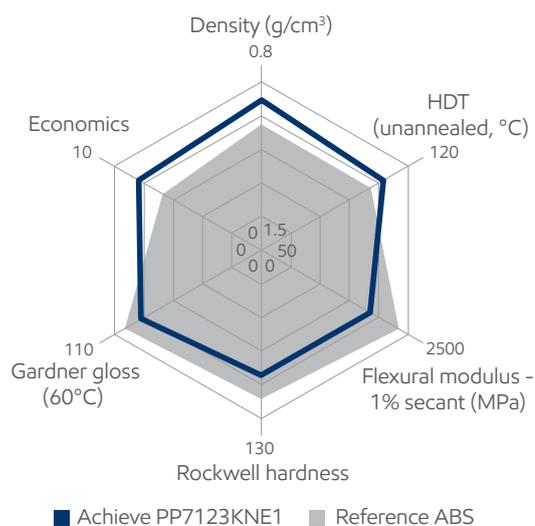
1. Economic cost calculation is based on the ICIS average ABS price in North East Asia in February 2018. Using a 0.8kg ABS part as an example, savings include the unit price difference between ABS and Achieve PP7123KNE1, as well as density benefits. Actual total savings are based on the weight of a customer's replacement part and other associated costs.

Figure 1:
Selected property data for Achieve PP7123KNE1 and the reference impact copolymer. Highlights improved aesthetics.



Note: all data from PDS, reference ICP gloss data from WOMS: MAC201408.0009-04.

Figure 2:
Selected property data for Achieve PP7123KNE1 and the reference ABS. Highlights cost saving opportunities.



Note: Achieve PP7123KNE1 data from PDS, ABS gloss/HDT/Flexural modulus from WOMS: MAC201408.0009-04, density, rockwell hardness from PDS



| Grade | MFR (230°C/2.16 kg) g/10 min | Tensile stress at yield MPa | Flexural modulus 1% secant (2.0 mm/min) – MPa | Flexural modulus 1% secant (0.051 in/min) – psi | Notched Izod impact (23°C) – J/m | Notched Izod impact (23°C) – kJ/m² | Heat distortion temperature (0.45 MPa) – °C | Gardner gloss (60°) |
|--------------------|------------------------------------|--------------------------------|---|---|-------------------------------------|---------------------------------------|--|------------------------|
| Achieve PP7123KNE1 | 11 | 30.8 | 1680 | 228000 | 85 | 6.9 | 102 | 89 |
| | ASTM D1238 | ISO 527-2 | ISO 178 | ASTM D790A | ASTM D256A | ISO 180/1A | ISO 75-2/Bf | ASTM D523 |

Values given are typical and should not be interpreted as specifications. Data generated by or on behalf of ExxonMobil Chemical. Test methods are based on the ASTM and/or ISO standards.

Use Achieve™ Advanced PP to challenge reality in appliance appeal.

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