



Clarified PP

The 'clear' solution to modern lifestyle



Reliance Industries Limited

Reliance Industries Limited is India's largest private sector company and the only private sector company from India to feature in the 2005 Fortune Global 500 list. The Group's activities span exploration and production of oil and gas, petroleum refining and marketing, petrochemicals (polymers, polyester, fibre intermediates and chemicals), retailing and textiles.

Reliance Polymers

Reliance Polymers is one of the world's largest producers of polymers with a current capacity of 3.5 MMT per annum and massive expansion plans underway. It operates world-scale plants for Polypropylene (PP), Polyethylene (PE) and Polyvinyl Chloride (PVC) using state-of-the-art technology and setting global benchmarks in product quality and services.

A wide range of grades in each of the categories provides diverse applications across packaging, agriculture, automotive, housing, healthcare, water and gas transportation and consumer durables. Superior technological strength, strong focus on R&D, latest IT-enabled services to support supply chain management, and end-to-end solutions offered across the value chain, bear testimony to its commitment to customer satisfaction.

Polypropylene



Being the 7th largest manufacturer of Polypropylene (PP) in the world and with a capacity of over 1.8 MMT per annum, Reliance Polymers offers a wide range of Homopolymer, Random and Impact Copolymer grades.

Homopolymer grades from Reliance Polymers are available in a wide range of melt flows and molecular weight distribution. They are used extensively in flexible applications valued for commodity and industrial packaging (TQPP, woven fabric, BOPP and Cast Film). Special grades are available for fibre and filament, extruded sheet and thermoformed applications.

Reliance Polymers has customised Impact Copolymers that are available in a diversified range of Impact and MFI to suit the needs of injection moulding, thermoforming, blow moulding, extrusion coating and compounding. Random Copolymers with improved strength are available for plumbing pipes and those with excellent contact clarity for injection moulded sheets and blow moulded applications.



Applications of Repol cPP

Across the world, cPP is emerging as the polymer of choice when it comes to retail packaging for better display and aesthetics.

Food & Beverages: Bottles, disposable cups, punnets, thin-wall containers

Water: Clear and flavoured water

Healthcare: Injection moulded syringes, cannulae, vials, and bottles

Dairy: UHT and flavoured milk, shrikhand, ice cream, lassi, dahi, yogurts and cheese

Optical Media: Compact disc boxes and covers

Houseware/Disposables: Injection moulded lip-lock containers, take-away food containers, glasses/cups for vending machines, disposable containers and single-serve boxes

Stationery: Office files, folders and other stationery items





Thermoforming with Repol cPP

Inherent benefits like clarity, chemical resistance and low density makes cPP an ideal choice for thermoforming. Reliance offers special grades for thermoforming offering several advantages:

- Hygienic, inert, odourless and microwaveable packaging
- Design flexibility – can be formed into various shapes
- Precise product placement in packaging due to contoured forming
- Lightweight, tamper-proof and airtight packaging
- Recyclable and non-toxic incineration

Major application areas for thermoformed Repol cPP include:

- Packaged food sector: clean, transparent and lightweight containers
- Food service industry: hygienic disposable cups, trays and glasses
- Microwaveable trays: fresh, as well as pre-cooked, frozen food
- Retail packaging: clear containers, clamshells, punnets as well as colourful POPs
- Blister packaging: tamper-proof packages and better displays
- Electronics industry: miniature components, boxes and trays
- Construction industry: bathroom accessories, domes, paneling and ceiling
- Consumer durables: refrigerator tray and vegetable basket

Clarified Polypropylene (cPP) – Advantages and benefits

Repol cPP offers processors, manufacturers and end users many advantages:

- Glass-like clarity
- Excellent moisture resistance
- Excellent chemical resistance
- Ability to hot fill (up to 98°C) and retortable
- Balance of stiffness, flexibility and hinge properties
- Excellent Environmental Stress Cracking Resistance (ESCR)
- Microwaveable
- Sub-zero temperature stability
- Lightest among all thermoplastics

Processing Technologies

Repol cPP offers excellent adaptability for various processing technologies – Thermoforming, Injection Stretch Blow Moulding (ISBM) and Thin Wall Injection Moulding (TWIM) – used for the manufacture of different products detailed as follows:



Injection Stretch Blow Moulding (ISBM) with Repol cPP

ISBM is the ideal process for producing high-quality glass-clear containers for beverage packaging. This process utilises the inherent benefits of cPP to the fullest. This has been made possible by rapidly emerging developments in ISBM machinery and the availability of specialty Repol cPP grades from Reliance.

- High clarity
- Superior mechanical strength
- Suitability for hot fill applications

Major applications of Repol cPP using ISBM

- Fruit juice bottles
- Health drink bottles
- Agrochemical containers
- Health and oral hygiene products
- Bathroom, and toiletry products



Major applications of Repol cPP using TWIM

- Houseware
- Microwavable trays
- Snacks and sweet box packaging
- Drinking cups
- Sweet boxes
- Jewel boxes/CD cases
- Dairy food packaging
- Disposable syringes
- Medical solution column
- Lids for low temperature packaging
- Soft pharmaceutical containers
- Caps & closures



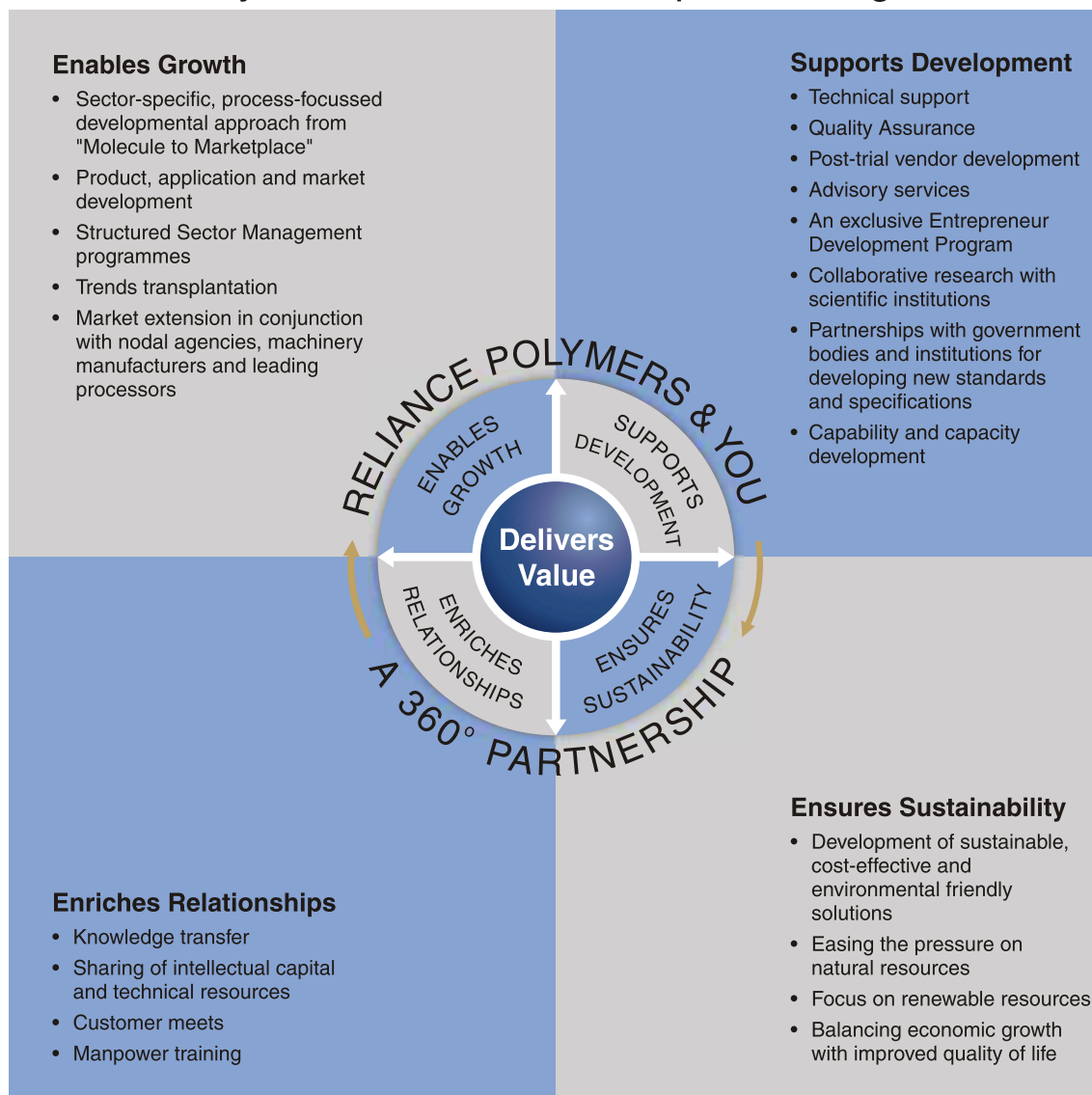
Thin Wall Injection Moulding (TWIM) with Repol cPP

TWIM is a fast emerging technology and cPP offers some unmatched benefits:

- Excellent clarity
- Light in weight
- Good stiffness/stackability
- Very good thermal resistance
- Excellent moisture barrier
- Resistance to environmental stress cracking
- Suitable for integral hinge (live hinge) designs
- Recyclable and non-toxic incineration



Reliance Polymers – 360° Partnership Delivering Value



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