

Industrial Packaging Material Selection Guide

Polymer & Paperboard Engineering Guide for Quality Control Engineers

1. Executive Overview & Technical Scope

Selecting the optimal packaging substrate requires balancing mechanical tensile loads, environmental exposure, barrier requirements, and cost-per-unit. This technical guide outlines the physical, chemical, and barrier properties of kraft paper liners, virgin polymers (HDPE, PP, PET), and composite structures manufactured across TopWay facilities.

2. Technical Specifications & Grade Parameters

Material Name	Base Resin / Fiber	Density / Caliper	Key Mechanical Property	Barrier Performance
Kraft Virgin Liner	Unbleached Softwood Pulp	140 - 280 GSM	High Burst Index	Moderate moisture vapor buffer
Semi-Chemical Fluting	Recycled + Wood Pulp	120 - 180 GSM	Crush Resistance > 220 N	Porosity optimized for starch adhesive
High-Density Polyethylene	HDPE Copolymer	0.952 - 0.960 g/cm³	High Tensile Yield > 28 MPa	Excellent chemical and moisture barrier
Polypropylene (PP)	Homo-Polymer Resin	0.905 g/cm³	Elongation at Break < 25%	High heat resistance, hydrophobic
Polyethylene Terephthalate	Bottle Grade PET	1.38 g/cm³	High Clarity, High Tensile	High CO2 & oxygen barrier for edibles

3. Engineering Features & Operational Advantages

- **Burst Factor vs. Ring Crush:** Understanding how fiber orientation affects stacking strength in ambient warehouses.
- **Melt Flow Index (MFI) Matching:** Optimizing wall thickness distribution in hollow blow-molded bottles to eliminate thin spots.
- **UV Aging & Stabilizers:** Incorporating light stabilizer masterbatches to prevent outdoor polymer embrittlement.

4. Commercial Compliance, Registration & Sustainability Credentials

- **100% Recyclable Materials:** Mono-material solutions designed for clean mechanical recycling.
- **Government Recognised:** Produced in accordance with Indian industrial manufacturing norms.
- **Trade Registrations:** GST Registered supplier with active IEC Code for international trade.

Commercial Inquiries & Custom Specifications:

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