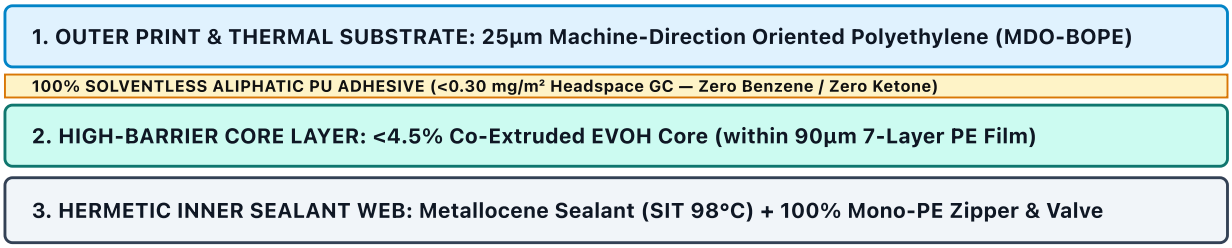
EU PPWR Grade-A Recyclable Mono-PE (<5% EVOH), 35% PCR & Home-Compostable Dossier

≥95% Polyethylene Stream Recyclability (Cyclos-HTP 96.4%), UK Plastic Tax Exemption & Zero-PFAS Declaration

1. MULTI-LAYER CROSS-SECTIONAL POLYMER STACK



Functional Layer	Verified Polymer & Micron Gauge	Converting & Lamination Process
Heat-Resistant Print Web	25µm Machine-Direction Oriented Polyethylene (MDO-BOPE)	High Modulus Stiffness — Prevents Jaw Shrinkage up to 148°C
Ultra-Thin Gas Barrier	<4.5% Co-Extruded EVOH Core (within 90µm 7-Layer PE Film)	Meets EU PPWR 2025/40 & RecyClass <5% Non-PE Threshold
Low-SIT Sealant & Hardware	Metallocene Sealant (SIT 98°C) + 100% Mono-PE Zipper & Valve	ΔT 32°C Sealing Window on Existing VFFS & Pouch Machines

2. LABORATORY PHYSICAL, BARRIER & MIGRATION TEST MATRIX

Parameter	Verified Factory Value	Instrument / Condition	Standard
Mono-Polymer Purity	96.2% Pure Polyethylene by Total Pouch Mass (RIC #4 LDPE)	Cyclos-HTP Grade-A (96.4%) & How2Recycle® Ready	EU PPWR 2025/40
High-Barrier EVOH OTR	OTR ≤ 0.58 cc/m²·24h | WVTR ≤ 1.15 g/m²·24h	Suitable for Coffee, Nuts, Pet Treats & Powders	ASTM D3985 / F1249
UK Plastic Tax PCR Option	30%–35% GRS-Certified Post-Consumer Recycled PE Mid-Layer	100% Exempt from £217.85/tonne UK PPT Levy	GRS 4.0 Traceable
PFAS & Heavy Metals	Total Organic Fluorine (TOF) < 10 ppm (Zero Intentional PFAS)	Pb+Cd+Hg+Cr(VI) < 5 ppm (Limit: 100 ppm)	CONEG / EU 94/62/EC

FlexPouchMFG™ Line Qualification & CAD Standards

3. HIGH-SPEED FILLING MACHINE & HEAT-SEALING OPERATING WINDOW

Pre-Made Rotary & Inline Pouch Fillers

Validated on Toyo Jidoki, Mespack, Volpak, Bossar & Rezpack (35–90 ppm). Bag flat camber <1.0 mm ensures 99.8% vacuum pick-up reliability. Recommended jaw pressure: 0.28–0.35 MPa; dwell: 0.45–0.70 s.

VFFS / HFFS / Stick-Pack Web Tracking

Calibrated kinetic COF (μk = 0.19 ± 0.03) prevents forming-collar stick-slip on Syntegon/Bosch, Viking Masek, Rovema & Ilapak lines up to 600 packs/min. Heavy-wall 76 mm / 152 mm cores.

4. PRE-PRESS ARTWORK BLEED, PHOTO-EYE MARK & ZIPPER/VALVE CLEARANCES

CAD Dieline Element	Mandatory Tolerance	Production & Filling-Line Purpose
Outer Bleed & Safety Margin	+3.0 mm bleed · -4.0 mm inner text safe zone	Eliminates white edge flash during high-speed rotary slitting (±0.15 mm)
Heat-Seal & Gusset Ink Mask	Optional matte/heat-resistant overprint lacquer	Prevents jaw ink transfer at 145°C–195°C sealing temperatures
Photo-Eye Registration Mark	10 mm × 5 mm solid high-contrast block (≥85%)	Clear unobstructed track for SICK / Keyence optical cut-off sensors
Laser Tear Score & Zipper Axis	Zipper center 32–38 mm from top; laser score -12 mm	Clean consumer thumb-opening without tearing into zipper flange
Barcode / DataMatrix Contrast	Opaque double-white ink backing (≥82% reflectance)	Guarantees ANSI Grade-A retail & GS1 / Chestny ZNAK scan rates

Complimentary Pre-Production Line Trial Policy: Prior to bulk printing, Alex Gao's engineering lab dispatches free unprinted trial pouches or 50–100m test rolls matching exact micron structure so your co-packer can verify jaw temperatures, autoclave F0 profiles, or 50°C cosmetic stability.

5. FACTORY-DIRECT TIERED REFERENCE MATRIX (HP INDIGO DIGITAL VS. 10-COLOR ROTOGRAVURE)

Format / Specification	HP Indigo Digital	Mid-Scale Run	High-Volume Rotogravure
250g Mono-PE Flat-Bottom Coffee Bag (+ PE Valve)	1,000 pcs ($0.265)	5,000 pcs ($0.168)	**25,000+ pcs ($0.098)**
500g Mono-PE Stand-Up Pouch (with Mono-PE Zipper)	1,000 pcs ($0.235)	10,000 pcs ($0.118)	**50,000+ pcs ($0.079)**
35% GRS PCR-PE Stand-Up Pouch (UK PPT Exempt)	2,000 pcs ($0.195)	10,000 pcs ($0.112)	**50,000+ pcs ($0.074)**
TÜV Home-Compostable FSC Kraft / NatureFlex™ Bag	2,000 pcs ($0.280)	10,000 pcs ($0.175)	**25,000+ pcs ($0.128)**

6. CLEANROOM EXPORT CARTON, PALLETIZATION & BATCH COA PROTOCOL

Stage	Standard Operating Specification	Verification Document
Inner Sanitary Liner	Antistatic food-grade virgin PE inner bag heat-sealed inside cleanroom	ISO Class 8 Lot Traceability Label
Export Corrugated Box	Double-wall 5-ply BC-flute Kraft carton (ECT ≥ 44 lb/in · gross ≤ 18 kg)	Drop-Tested Carton Corner Guards
FCL / LCL Palletization	Heat-treated ISPM-15 fumigation-free pallets + LLDPE stretch hood + desiccant	Container Loading Photo Report
Mandatory Release COA	MOCON OTR/WVTR, Instron ASTM F88 seal curve & Agilent 8890 GC solvent chromatogram	PDF + Printed COA in Carton #1

Request Your Custom 1:1 Vector Dieline & Free 25-Pouch Sample Kit (2-Hour SLA):

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