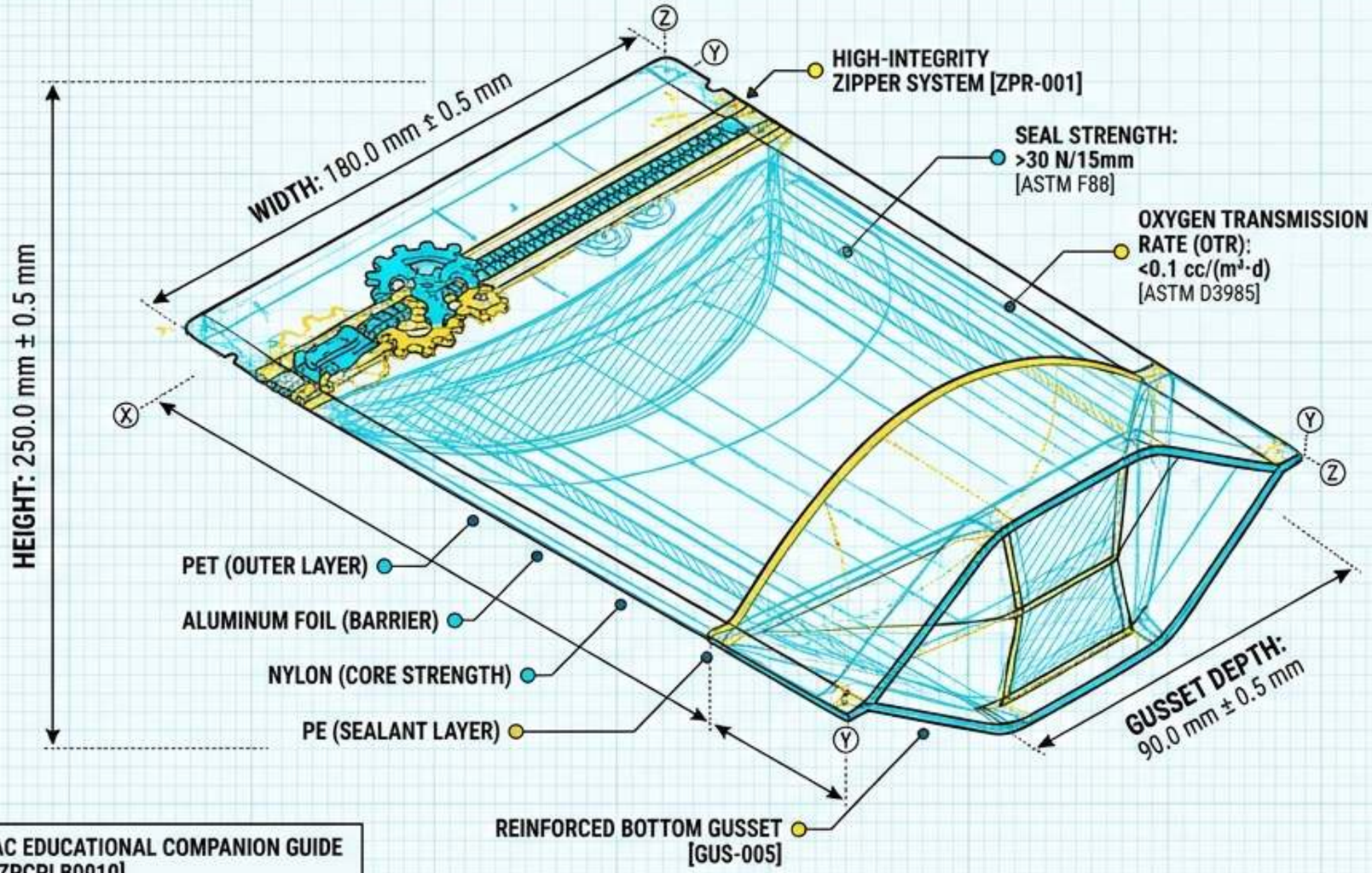
THE PACKAGING SPECIFICATION BLUEPRINT

A Diagnostic Guide to Barrier Films, Zippers, and Digital Print MOQs for Small Food Brands



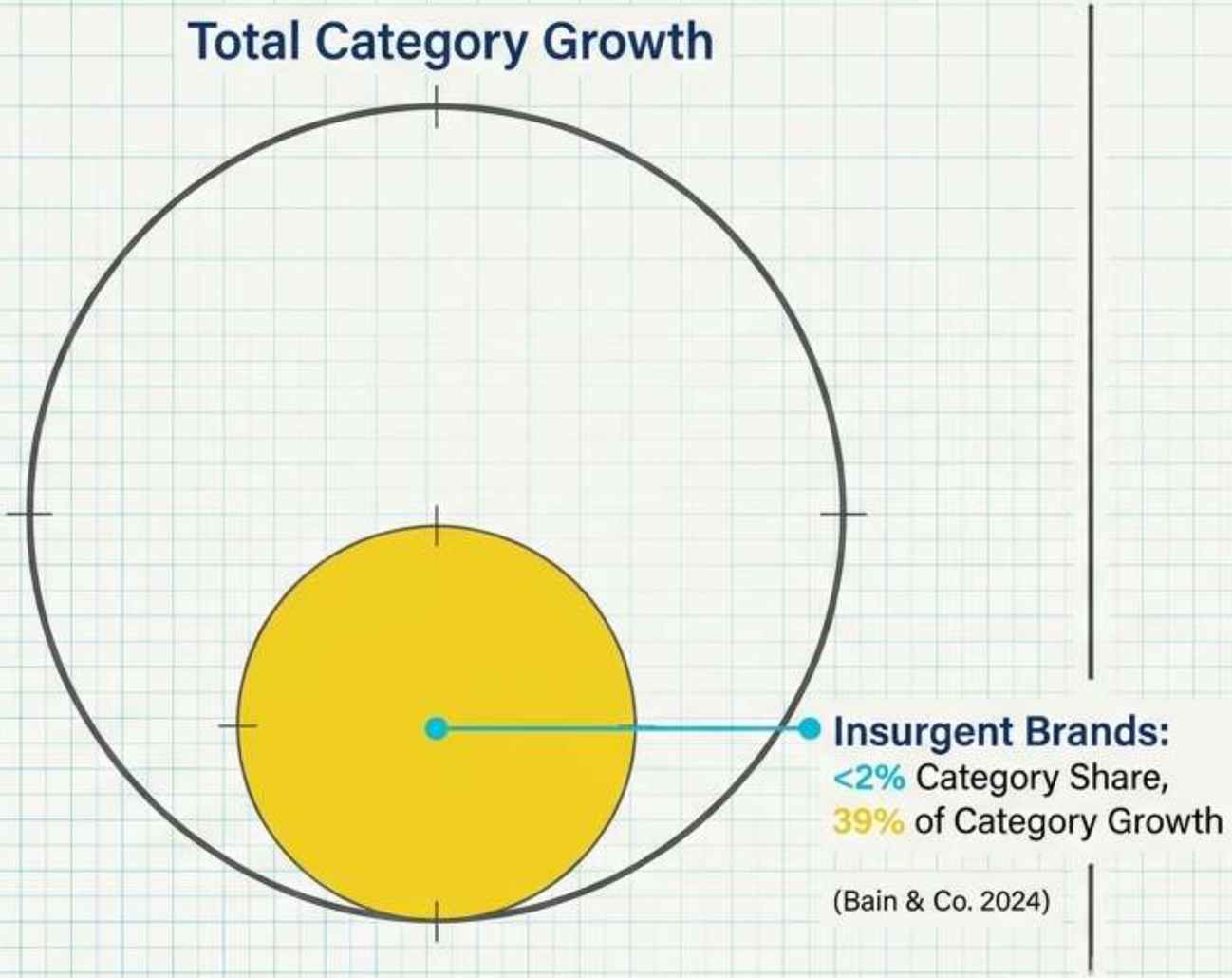
MATERIAL SPECIFICATIONS & PERFORMANCE DATA		
PARAMETER	SPECIFICATION	TOLERANCE
BARRIER TYPE	Multi-Layer Foil Laminate	± 0.5%
TOTAL THICKNESS	120 µm	± 0.5
PRINT TECHNOLOGY	Digital Print [CMYK+W]	- CMYK+W
TOTAL THICKNESS	9.0 µm	< 0.5 - ?.6
PRINT TECHNOLOGY	Digital Print [CMYK+W]	
MOQ:	1,000 Units	
TOTAll HELGTH	120 µm	± 0.5%
THICKNESS:	120 mm	± 0.5%
THICCTLE	<0.5 µm	± 0.%
TOTAL THICKNESS	120 µm	± 0.5 mn
MOQ:	1,000 Units	

CRITICAL WARNINGS & FAILURES [ATTN: QC]	
SEAL INTEGRITY FAILURE:	CHECK TEMP & PRESSURE
ZIPPER MALFUNCTION:	ENSURE ALIGNMENT
DETMMINATION RISK:	AVOID EXCESSIVE HEAT
DELAMINATION RISK:	AVOID EXCESSIVE HEAT

ZIGPAC EDUCATIONAL COMPANION GUIDE
[SKU ZPCPLB0010]

ZIGPAC

Small brands drive market growth but inherit legacy supply chains



Common Vendor Mismatches

- ☐ - Quotes sized only for national-brand container loads.
- ☐ - Incomparable proprietary film codes.
- ☐ - Zero proof of food-contact suitability.

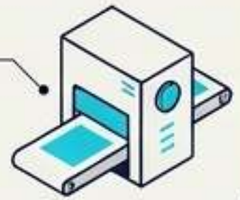
Evaluating quotes on unit price alone guarantees specification errors.



Look past the per-bag price. Choosing the wrong pouch costs more than the invoice.

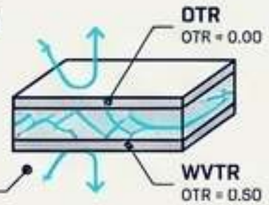
1 Print Route Engine

Matched to your quantity per design.



2 Measured Barrier Data

Exact OTR and WVTR test figures for the specific laminate.



3 Regulatory Evidence

Food-contact declaration citing 21 CFR sections.

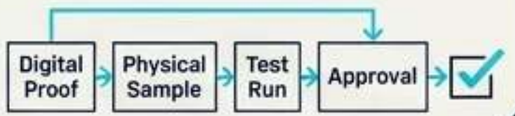
⇒ 21 CFR 177.1350 FDA Compliant



21 CFR 177.1350 FDA Compliant

4 Verification Protocol

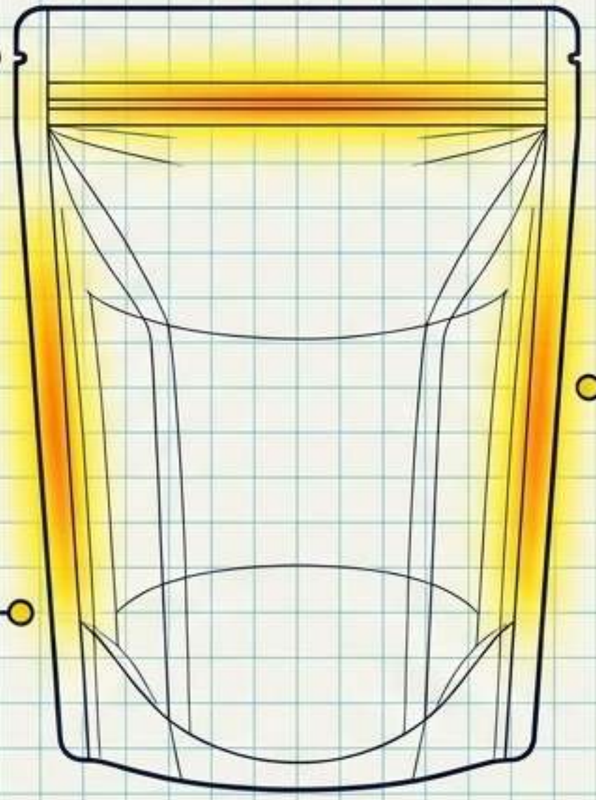
Mandatory proof-and-sample steps before bulk.



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Structural seal integrity is the most common point of flexible packaging failure.

791
Total seal-integrity recalls analyzed (2019–2025, AAPS Open).



74.8%
Proportion of those recalls involving pouches.

54%
Traced directly to incomplete or defective seals.

Food pouches fail in the exact same way.
Fixing films and features before artwork prevents catastrophic seal faults.

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Step 1: Match the printing route to your artwork volatility and SKU count.

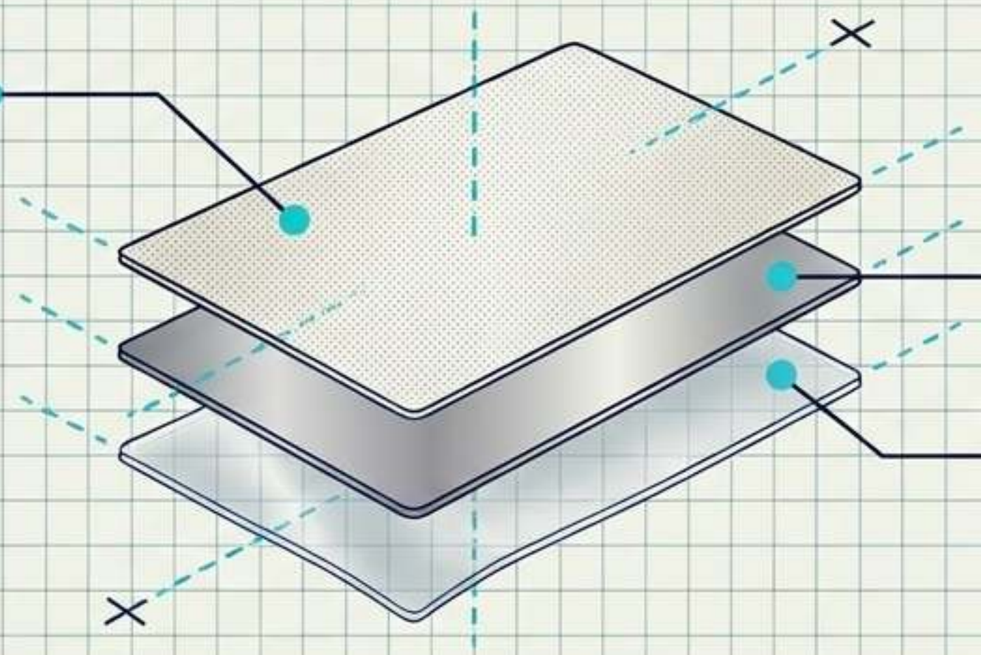


The Print Route Optimizer	Short-Run Digital	Plate/Cylinder (Flexo/Gravure)	Stock Pouch + Label
How it prints	Straight from file	One plate/cylinder per color	Blank pouch, in-house label
Ideal Brand Stage	Fast changes, low qty per design	Frozen design, steady monthly sales	Pilot testing, market stalls
The Trade-off	Higher unit price, limited finishes	High tooling cost, slow updates	Weaker shelf look, labels lift

Zigpac confirms the printing route for each design on the quote—ask suppliers what changes when you reorder.

Step 2: Formulate barrier layers independently from exterior aesthetics.

Exterior (Print/Aesthetic)
Matte, Gloss, Soft-Touch, or Kraft Paper



Core (Barrier)
VMPET, Foil, or EVOH

Interior (Sealant)
PE (Food Contact)

Visual Equation	[Kraft Paper Exterior] + [Matte Finish] = 0 Barrier Value

Freshness depends entirely on the inner core layers. Kraft paper adds a natural look, but absolutely zero barrier protection.

Demand measured barrier transmission rates over vague ‘high barrier’ claims.



Threatens: Nuts, coffee, fish-based treats (staling).

Testing Standard: ASTM D3985 (dry) or ASTM F1927 (controlled humidity).



Threatens: Powders, spices (clumping).

Error: A label of ‘High Barrier’ without numbers cannot be compared. Always demand measured OTR and WVTR for the exact laminate quoted.

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The Barrier Performance Matrix: Selecting the core protection layer.

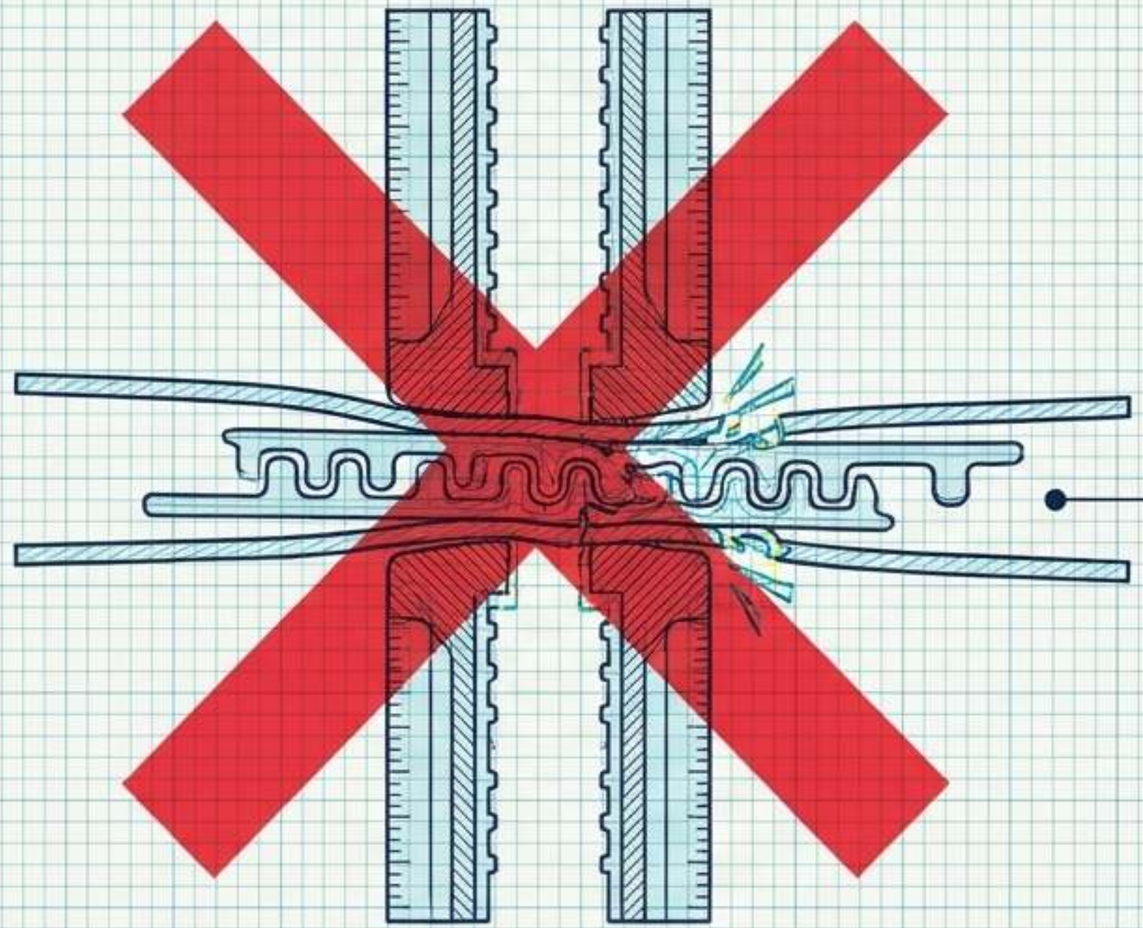
Material	Typically Chosen For	Trade-offs
Clear PET/PE	Dry snacks, candy.	Limited oxygen/light protection.
Metallized PET (VMPET)	Coffee, tea, spices, pet treats. Cuts oxygen/moisture/light.	Opaque; barrier drops at creases.
Aluminum Foil (PET/AL/PE)	Oily/aroma-sensitive items, fresh coffee, supplements. Highest barrier.	Opaque, heavy, triggers metal detectors.
EVOH Layer	Products needing oxygen barrier + a clear viewing window.	Oxygen barrier weakens at high humidity.



At Zigpac, the base material is a PET/PE laminate with your choice of optional core layers. Two mills' 'metallized' bags can perform differently—always check the exact laminate specs.

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Step 3: Engineer dieline features before graphic designers open the file



Blueprint Rule Box

- Standard press-to-close zipper placement: 30–35 mm below the top edge.
- Tear notches must be above the zipper.
- Seal strength must be verified via ASTM F88/F88M-23 testing.

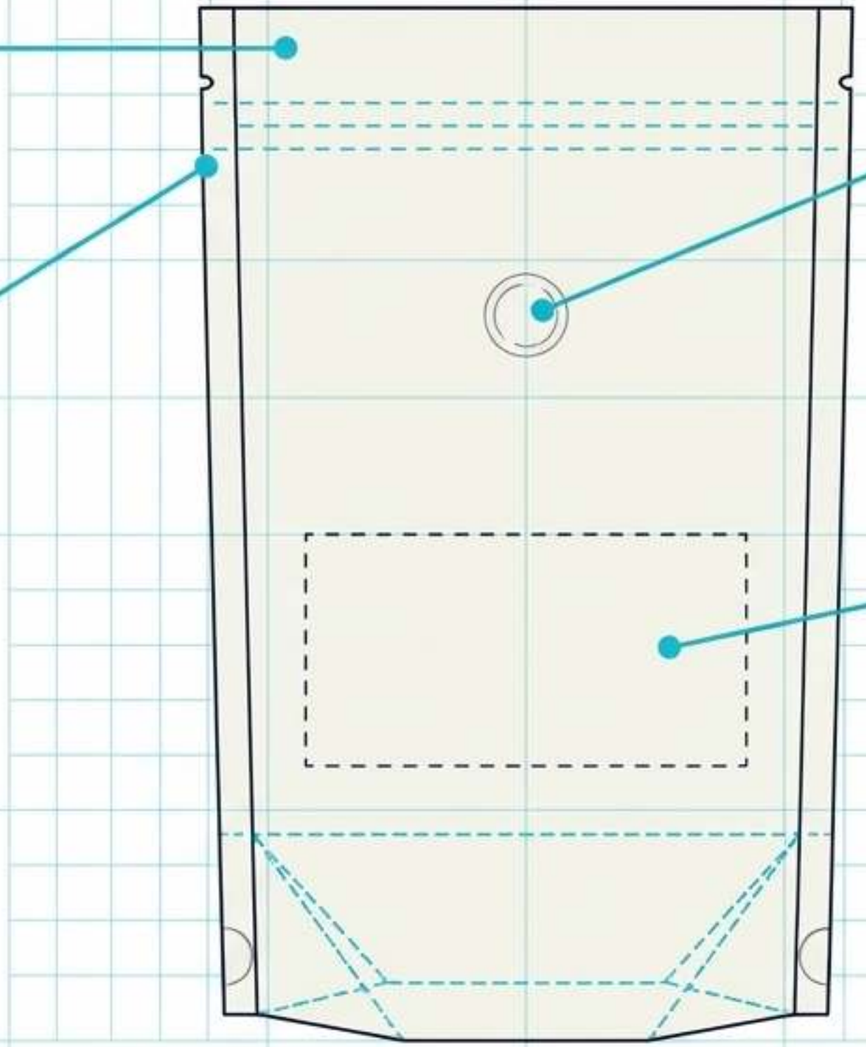
The False Seal

If a zipper is placed too high, the sealing jaw lands directly on it, destroying the zipper and creating a defective seal in one pass.

Feature placement dictates available artwork real estate and structural integrity.

Top Margin
Leave clearance for the top heat seal and hang hole. Keep key artwork out.

Tear Notch Zone
Positioned explicitly between the top seal and the zipper.



Degassing Valve
(For fresh-roasted whole-bean CO2 release). Keep valve flange clear of barcodes and small text.

Clear Window
Shows product but removes metallized/foil protection in that specific area.

Callout Note ⚠

Adding a valve or window after artwork approval sends the entire file back to square one. Lock features first.

Step 4: The required evidence flow for food-contact compliance.

THE MYTH



The FDA does not approve individual pouches.

THE REQUIRED REALITY FLOWCHART

Laminate Structure
Full layer-by-layer disclosure (inks, adhesive, sealant).

↓

Compliance Declaration
Citing applicable 21 CFR sections (e.g., Part 177) or FCN for your food type and temperature.

↓

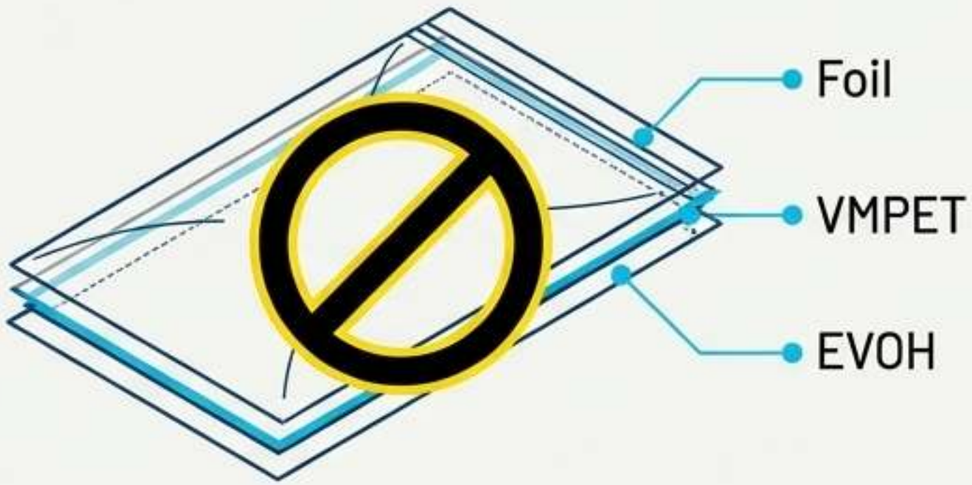
Lot Traceability
Linking every delivery back to specific film rolls and print jobs.

⚠ **Warning Note:** ISO 9001 or BRCGS certificates describe a plant's management system, not your specific pouch's food safety.

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Recycling claims are strictly regulated, not just marketing copy.

The Material Reality



Multilayer foil, metallized, and EVOH laminates generally cannot go into standard film recycling streams.

The Regulatory Reality

FTC Green Guides

Require claims to reflect collection that consumers can actually use

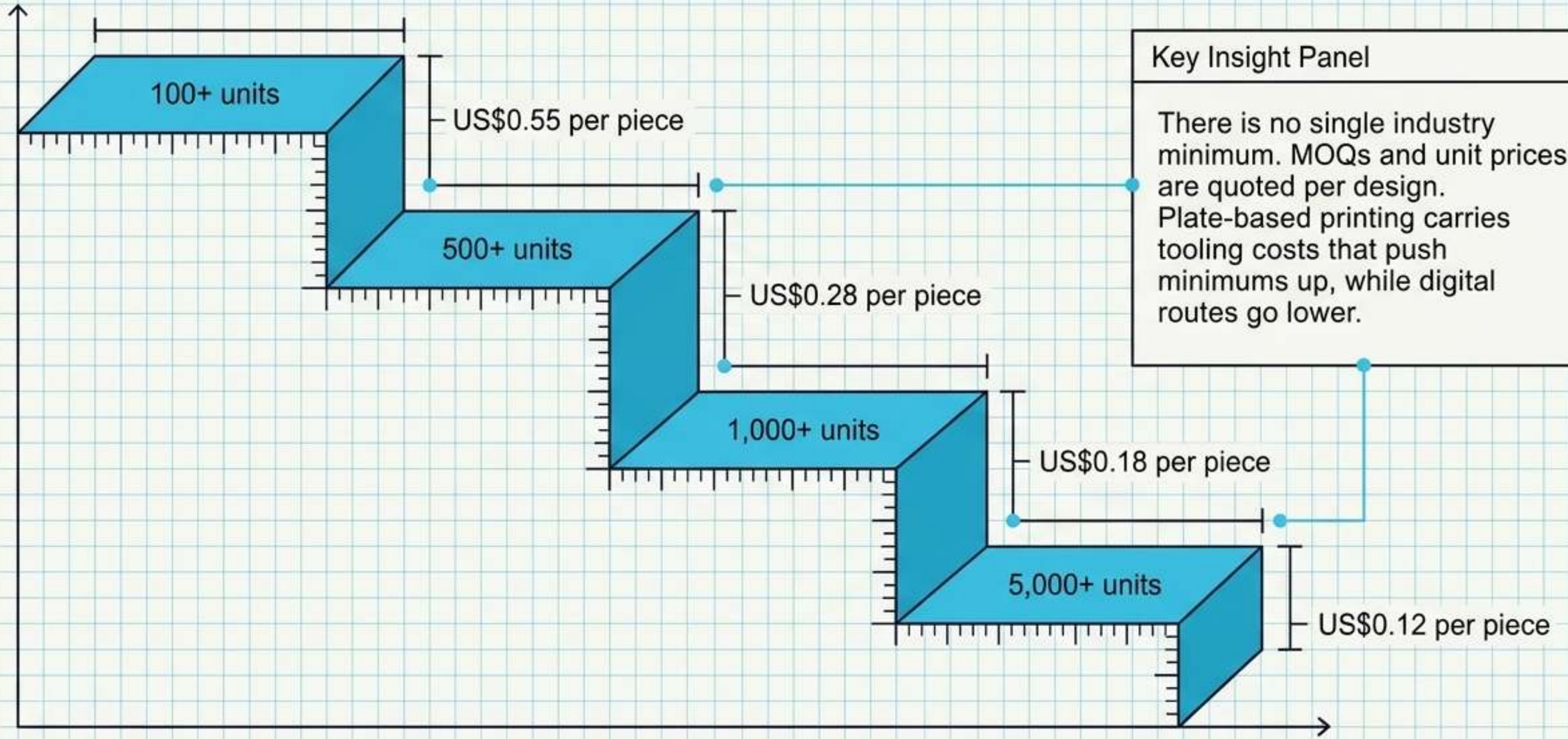
California SB 54

Strict packaging rules in force since May 1, 2026

Do not print recycling claims on a barrier laminate without structure-specific evid

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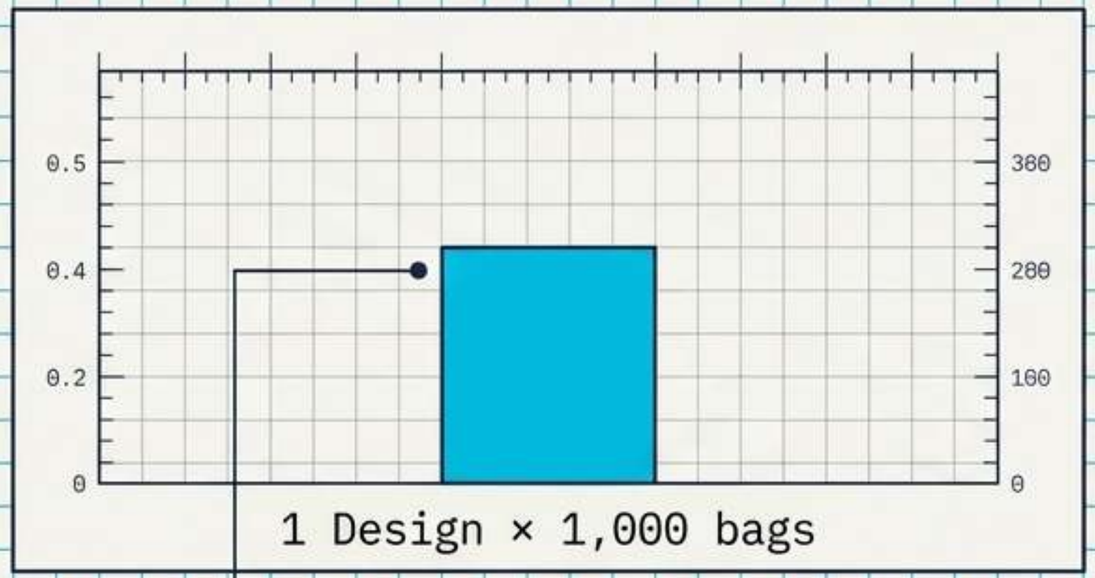
Step 5: Quantity per design drives unit price more than total order volume.



Key Insight Panel

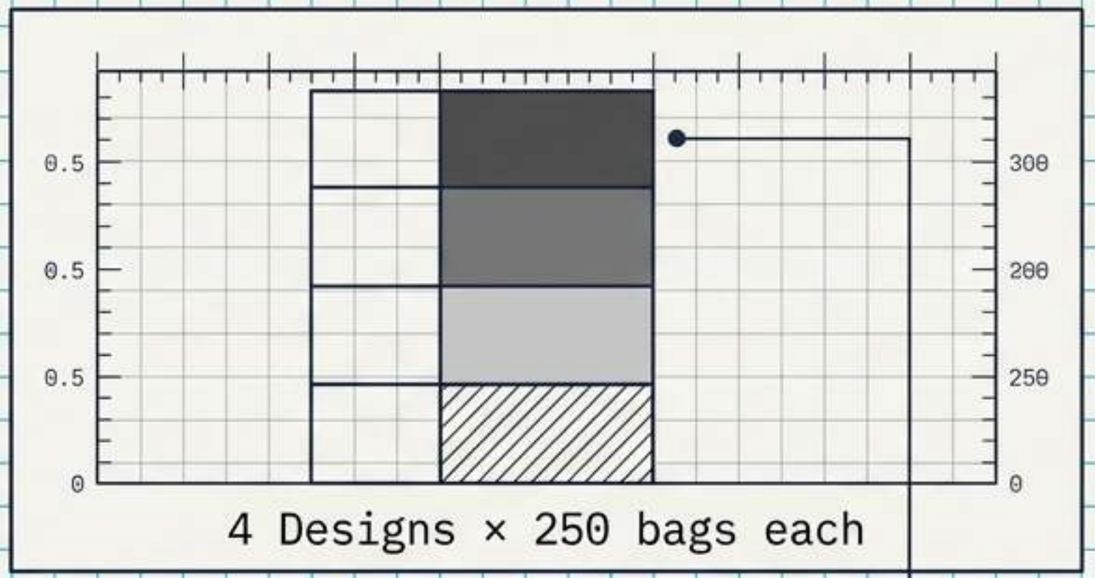
There is no single industry minimum. MOQs and unit prices are quoted per design. Plate-based printing carries tooling costs that push minimums up, while digital routes go lower.

Cost Modeling: The 1,000 Bag Paradox



1 Design × 1,000 bags

Unit Price: $0.18.
Total Cost: US$180.



4 Designs × 250 bags each

Unit Price: $0.55.
Total Cost: US$550.

Bottom Strategy Panel

Workarounds for small brands:

1. Use a shared printed base design with flavor stickers.
2. Print bestsellers at scale, keep slow movers on short runs.
3. Use custom flat Mylar heat-seal pouches (no stand-up) for trial sizes.

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Synthesis: The complete ‘One-Page Quote Brief’.

The Master Spec

1. Product Profile	
Sensitivity (oil, aroma, moisture, CO2)	
Target fill weight	

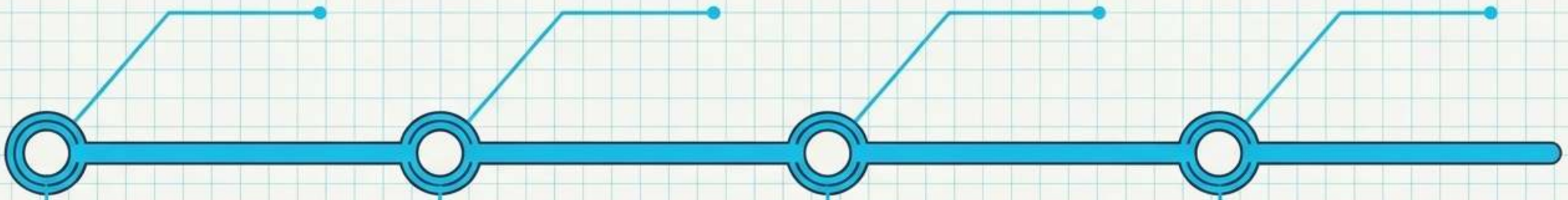
2. Physical Specs	
Proposed size	
Selected film structure	
Needed features (zipper, valve)	

3. Supply Chain	
Artwork status	
Quantity per design	
Final destination	

Questions to ask the supplier:

- ☐ OTR/WVTR test conditions?
- ☐ 21 CFR sections cited?
- ☐ Lot traceability method?

The Zigpac Production Standard.



Specification Review

Print route, MOQ, and price confirmed per design based on the brief.

Verification Step

Free eProof generated. Physical samples shipped for US$5–30.

Production Clock

7–10 days standard production (clock starts at proof approval).

Delivery Variable

Allow additional time for artwork revisions and ocean freight.

At Zigpac, any regulatory compliance not yet confirmed for your specific pouch is listed on the quote as "pending testing." Total transparency, engineered for scale.