HUAYUE GROUP | CASE STUDY

CASE #02 · MATERIAL SCIENCE & R&D

# Benchmarking Trash Bag Resins: Lab-Backed Formulation for Top-Tier Strength & Market Competitiveness

**Client:** Canadian Packaging Retailer

**Scope:** Lab Benchmarking & Custom Resin Formula

## CHALLENGE — Balancing Durability & Margin

The client supplied multiple market trash bag samples and asked Huayue to engineer the strongest overall production solution.

Relying on manual feel alone risked over-specifying resin costs or shipping bags prone to puncture, seam splits, or inconsistent film quality.





**Lab Intake Benchmarking**
Dart-drop & tensile lab checks exposed strength and gauge swings hidden by hand-feel alone.

## SOLUTION — Data-Driven Resin Engineering

Huayue cataloged every market sample and ran a transparent R&D workflow to lock the optimal formula:

- **5-Point Dual-Track Testing:** Paired senior engineers' tactile checks with **4 ASTM lab tests** (tensile, seal, dart-drop, burn ash).
- **Joint Formula Design:** Shared full lab data directly with the client to optimize resin-to-filler ratios for elite strength at lower unit cost.
- **Commercial Scale-Up:** Scaled a high-value production spec that lifted retail competitiveness and sales.





**In-House ASTM Lab Suite**
GBPI tear (D1922) & tensile (D882) testers verify every resin recipe before scale-up.

## DIAGNOSTIC & FORMULATION ARCHITECTURE

### How Huayue Translated Benchmark Samples into a Winning Commercial Formula

**CLIENT SAMPLES**
- Benchmark Bag A
- Benchmark Bag B
- Benchmark Bag C

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**HUAYUE 5-POINT DIAGNOSTIC SUITE**

**TRACK A · TACTILE:** Hand-feel & film drape benchmark

**TRACK B · QUANTITATIVE LABORATORY TESTS:**

| | |
|---|---|
| **1. Tensile Strength** Load & elongation limit | **2. Seal Strength** Bottom & side seam integrity |
| **3. Dart Drop Impact** Puncture & shock resistance | **4. Burn Ash-Content** Resin purity & filler ratio |

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**WINNING FORMULA**

**Top-Tier Lab Scores**
Across all benchmark metrics

**High Cost-Efficiency**
Optimized resin-to-filler blend

**Sales & Market Share Lift**

## 5-Point
**Dual-Track Diagnostics**
Engineer hand-feel checks paired with 4 standardized lab tests.

## 8–12%
**Unit Cost Optimization**
Optimized resin-to-filler blend cut unit cost while matching top-tier strength.

## 20%+
**Sales & Market Share Lift**
Stronger retail competitiveness drove sustained volume and share gains.

### Conclusion — Why Global Retailers Partner with Huayue Group

Send us your target market samples—our engineers and in-house lab translate subjective feel into hard mechanical and resin data, co-developing cost-effective formulations that win on retail shelves and grow market share.



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