



Every year, billions of reusable packaging products are manufactured from polyolefin thermoplastics such as pallets, bins, crates, drums and other custom solutions.

Multiple industries choose these plastics specifically for their cost savings and superior performance properties over other materials.

# Polymer Fusion Technology Security Solutions

For Track/Traceability  
on LSE Polyolefin Thermoplastics (Barcode, UID, DataMatrix, QR Code, RFID)



Amazon Distribution Center reusable totes with track/traceable adhesion-based labeling.

## Industries Using Reusable Packaging

- > **Users:** retailers, wholesalers, manufacturers, processors, growers, distribution and logistics providers, and government agencies.
- > **Manufacturers:** pallets, containers, crates, totes, IBCs, drums, tanks, dunnage, racks, carts, dollies, and cargo protection.
- > **Suppliers / Service Providers:** washing & sanitizing equipment and services, sort and return services, asset repair, technology equipment and services, raw materials, engineering & design, and transportation & logistics.

There's one major problem however! 10%-40% of reusable packaging goes missing each year due to loss of track / traceability on those products.

Why is that? Ironically, the performance properties that make polyolefin thermoplastics such a versatile material for reusables also make them problematic for common "adhesion-based" track/trace labeling methods available today (e.g. *pressure-sensitive adhesive, in-mold, hot stamp foil, heat transfer, silk screen, pad printing and more*) that are intended to be on the product for life use.

When track/traceable labels (e.g. barcodes, UID's, DataMatrix, QR Codes, RFID Tags and more) become damaged or fail completely, the only result is missing reusables and costs associated.



Failing adhesion-based durable label applied to LSE Plastic.

“Real World” results prove that common labeling methods are continuously failing their duty (branding, warning, tracking/tracing, informative, anti-counterfeit, anti-theft, authentication and more) on polyolefin thermoplastic products, parts and components that are depended upon every day and it’s costing the industry millions.

Could it be that 10%-40% of missing reusables is due in part to failing track/trace labeling? Of course that would come as no surprise as both reusables and their labeling are consistently being subjected to extremely harsh environments (sanitation cycles, extreme temperatures, chemicals, moisture, uv, etc.) numerous times annually throughout their lifespan that renders “adhesion-based” methods unsustainable.

Fact is, not only does the reusable industry require that track/traceable labeling be in place for life of the product, the various industries reusables serve solely depend on it, meaning label failure is not an option.

There is however a better alternative!

## Polymer Fusion Technology

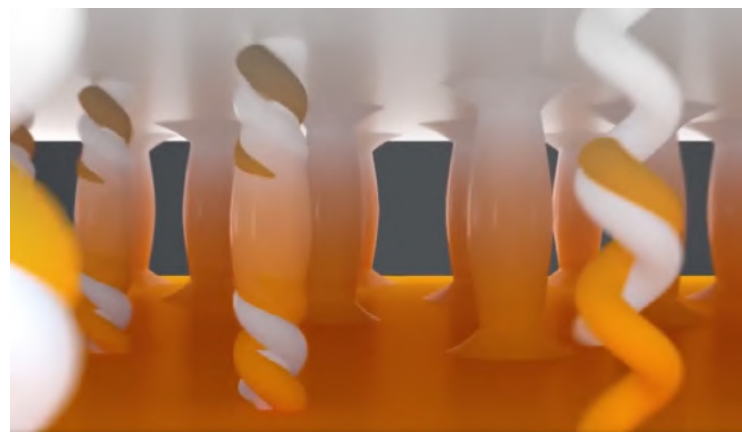
*- the science of merging two separate polyolefin thermoplastic polymers together (polyolefin label + polyolefin product) utilizing melt point, time and pressure producing a singular piece of plastic without the use of adhesives, tie layers, bonding agents or secondary surface treatments.*

**Polymer Fusion Technology** was specifically engineered for perfect compatibility with polyolefin thermoplastic products, parts and components to deliver unrivaled lifelong performance.

During application, the Polymer Fusion Label and polyolefin thermoplastic product simultaneously reach melt point causing a “fusion reaction.” The result - a permanent track and traceable mark on plastic that cannot be lifted, separated or removed for the life of the product no matter the environment or exposure.

For track/traceability labeling where longevity, durability and permanence matters most, Polyfuze’s industry-leading **Lifetime Guarantee** means peace of mind knowing Polymer Fusion Technology has your back for the next 5-10 years of a reusables life, and beyond.

**\*Polymer Fusion Labeling is fully recyclable with polyolefin thermoplastic products at end of life use.**



(TOP - Fusion Label, BOTTOM - Polyolefin Product, MIDDLE - “Fusion Reaction”) Simulation of Polymer Fusion Label fusing to Polyolefin Thermoplastic Product



Polymer Fusion Technology printed and fused to LSE Biohazard Tote.