

CoolisT Knowledge Center

What Is Bio-Based Polyurethane? A Clear Guide for Bedding Brands

● ● ● Keywords: bio-based polyurethane, plant-based foam, soy-based foam, sustainable foam materials, bio-based bedding ● ● ●

If you're sourcing foam for pillows, mattress toppers, or mattresses, you've likely started hearing the term **bio-based polyurethane**. But what does it actually mean — and why does it matter for your brand? Here's a clear, no-jargon explanation.

► Polyurethane Foam: The Starting Point

Conventional polyurethane (PU) foam is one of the most widely used materials in the bedding industry. It's made by combining two chemical components — polyols and isocyanates — that react to create a flexible, resilient foam structure.

Traditionally, both components are derived entirely from petroleum. That's the baseline most of the industry has worked from for decades.

► What Makes It "Bio-Based"?

Bio-based polyurethane replaces a portion of those petroleum-derived raw materials with ingredients sourced from plants. The most common plant feedstocks include:

- ****Soybean oil**** — the most commercially mature and widely certified option

- **Castor oil** — valued for its natural hydroxyl content
- **Palm oil** — used in certain regional supply chains

At CoolisT, our primary bio-based feedstock is soybean oil. Our foam contains between **28–35% bio-based content** by weight — verified and certified under the **USDA BioPreferred Program**.

► What Changes — and What Doesn't

Bio-based PU foam retains the same fundamental performance characteristics that brands rely on: consistent density, controlled firmness, reliable resilience, and long-term durability. The manufacturing process is also largely the same, which means it integrates smoothly into existing supply chains without requiring new tooling or reformulation on the brand side.

What changes is the carbon story. By substituting plant-based inputs for petroleum-based ones, bio-based foam carries a lower embedded carbon footprint. Plants absorb CO₂ as they grow — which means the carbon already "banked" in those crops partially offsets what would otherwise be pure fossil-fuel dependency.

► Why This Matters for Bedding Brands Right Now

Consumer expectations around sustainability have crossed a threshold. A growing segment of buyers — particularly in North America and Europe — actively looks for certifications and materials claims before making a purchase. Retailers and brand partners are translating that into sourcing requirements.

At the same time, regulatory pressure is increasing. Carbon reporting frameworks, extended producer responsibility policies, and green procurement standards are moving from voluntary to expected across many markets.

Bio-based foam gives brands a credible, certifiable response — not a marketing claim, but a material fact backed by independent standards.

► The Certification Layer

Not all bio-based claims are equal. What separates a verified bio-based product from an unverified one is third-party certification. CoolisT holds:

- ****USDA BioPreferred**** — certifies bio-based content percentage
- ****ISCC PLUS**** — certifies sustainable sourcing and supply chain traceability
- ****CertiPUR-US Bio**** — certifies foam content, emissions, and durability
- ****Biodegradable certification**** — independently tested end-of-life performance

These certifications exist precisely because "bio-based" without verification is just a label. With them, it's a supply chain fact.

► The Bottom Line

Bio-based polyurethane is not a niche material or a prototype. CoolisT has been producing certified soy-based PU foam at commercial scale since 2015 — over ten years of proven production, tens of thousands of units per month, and a full certification stack that holds up to procurement scrutiny.

If your brand is building a more sustainable bedding line, this is where the material story starts.

CoolisT is a bio-based polyurethane foam manufacturer based in China, supplying bedding brands globally. Learn more at [www.coolist.cc](<https://www.coolist.cc>)