



THE VALUE OF OVERMOLDING

LIFE SCIENCES

What Is Overmolding?

Overmolding is a process where tubing and connectors are joined using a **controlled injection molding technique**, creating a **seamless, bonded interface**.

This method replaces traditional **mechanical connections** (like barbed fittings and cable ties), **reducing manual assembly steps** and potential for human error.



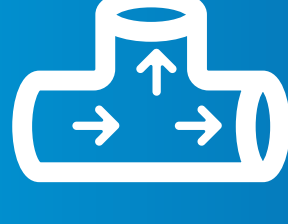
Why Choose Saint-Gobain Life Sciences' Overmolding?



Superior Mechanical Strength



Leak Risk Reduction



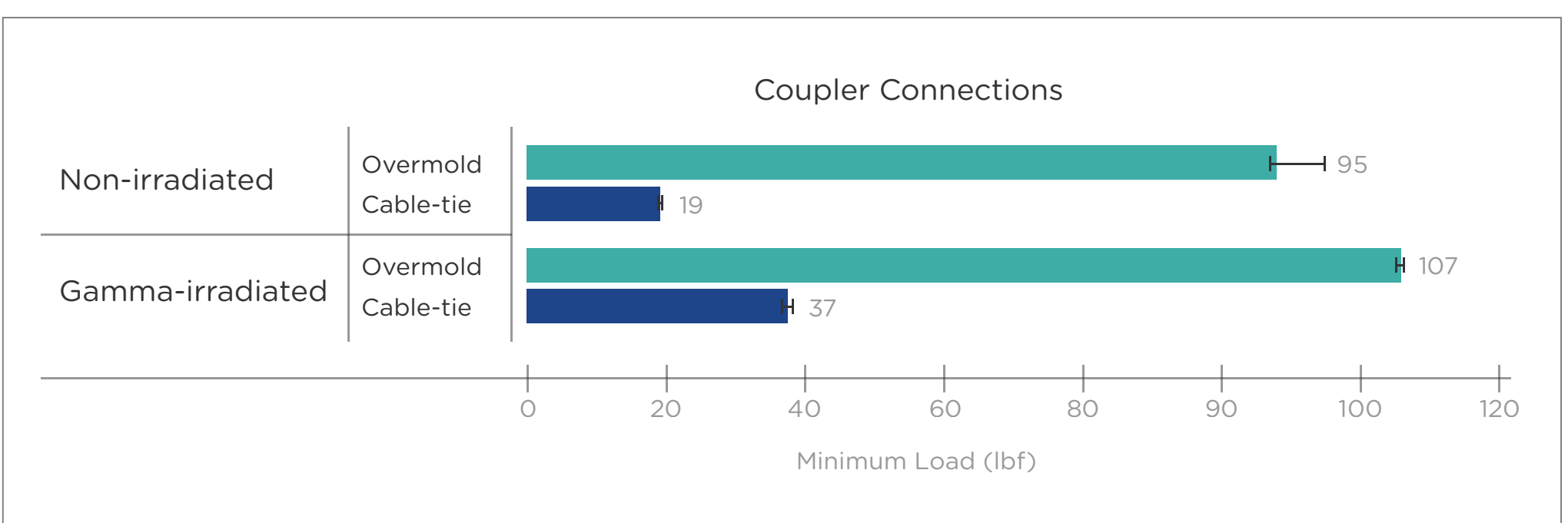
Seamless Connection, Seamless Flow



Sustainable Advantage

Superior Strength & Reliability

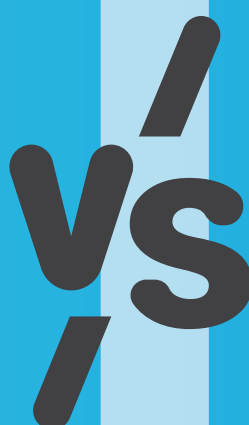
Overmolded assemblies show 3-4x higher tensile strength than mechanical connections. Both overmolded and mechanical assemblies meet burst pressure requirements, but overmolding ensures the failure point is always in the tubing, not the connection.



Less Connections Means Less Leak Opportunities

Traditional Mechanical Joining

- Multiple mechanical interfaces (barbs, ties, fittings) create multiple potential leak paths
- Manual assembly introduces variability in force, alignment, and fit
- Each interface increases the probability of loss of integrity over time

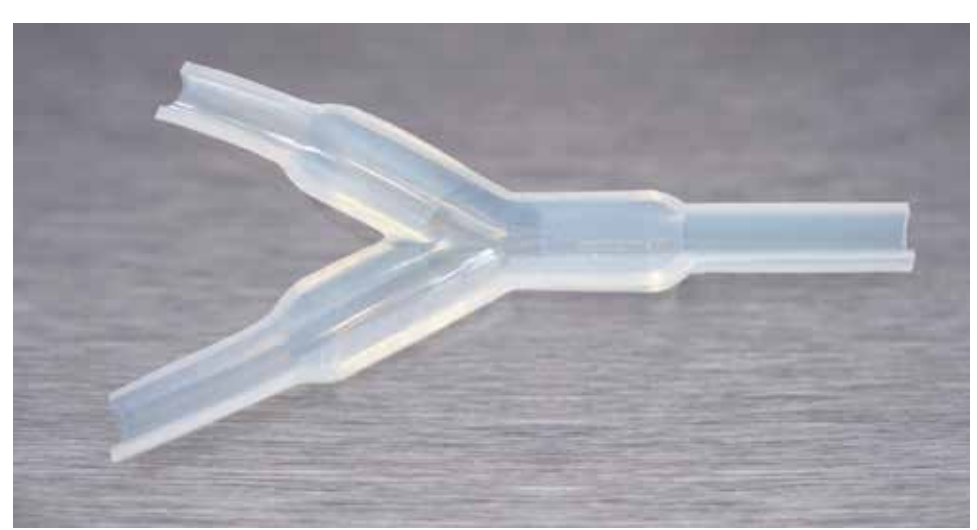


Overmolded Solution

- One-piece, bonded interface eliminates mechanical junctions
- Controlled injection molding creates a uniform, repeatable seal
- Fewer interfaces and controlled processing significantly reduce leak risk

A Compact Design for a Seamless Fluid Path

Designed using flow modeling, overmolding delivers a smooth, uninterrupted fluid path, minimizing turbulence and flow-induced stress compared to traditional mechanical connections.



Overmolding: A More Streamlined and Resource-Efficient Assembly

Using the same or highly compatible polymer for both the tubing and the overmold forms simplifies end-of-life handling and supports future circularity. By eliminating additional components, overmolding also reduces material consumption, minimizes small-part waste, and results in a more compact, integrated assembly.

Discover the full performance data, Computational Fluid Dynamics (CFD) modeling, and validation results in the complete white paper.

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