Wilson Trailer Hopper Seams & ForzaBOND® OS24

Enhancing Strength, Sealing, and Longevity in Grain Trailer Manufacturing

Wilson Trailer Company, headquartered in Sioux City, Iowa, is one of the largest and most respected trailer manufacturers in the United States. Known for their innovation in aluminum grain trailers, Wilson continuously evaluates ways to improve structural performance, longevity, and corrosion resistance—especially in critical areas such as hopper seams, where stress, vibration, and environmental exposure converge.

When Wilson Trailer set out to address performance and sealing issues in their outer wall hopper seams, they partnered with Forza, an industrial adhesives and sealants specialist, to evaluate advanced bonding solutions. The goal: reduce reliance on mechanical fasteners and achieve a durable, watertight seal across the seam assembly.

The Challenge

Traditional grain trailer construction relied heavily on huck bolts and rivets to join aluminum panels at the hopper seam. Although mechanically robust, this approach created potential stress points, allowed flex-induced cracking, and required periodic inspection for fastener loosening or corrosion. Moreover, mechanical joints did not provide an effective environmental seal—moisture and road salts could migrate between panels, accelerating corrosion especially in harsh agricultural and winter conditions.
Wilson Trailer sought a method to both **strengthen** the seam bond and **seal** it against the elements, while maintaining production efficiency.

The Solution: ForzaBOND OS24

Forza introduced **ForzaBOND OS24**, a one-part, moisture-curing hybrid polymer adhesive/sealant engineered for high-performance structural bonding. It offered a unique combination of **adhesion strength**, **flexibility**, and **durability** that allowed Wilson's team to reimagine how hopper seams were assembled.

Unlike polyurethane or silicone sealants, ForzaBOND OS24 exhibits excellent adhesion to metals—including bare and painted aluminum—without the use of solvents or

isocyanates. It remains flexible under vibration and temperature swings, does not shrink or bubble during cure, and resists water, fuel, oil, and road chemicals.

From a manufacturing standpoint, OS24 applies cleanly by extrusion, smooths easily along seams, and has sufficient tack to hold parts in place during assembly. It begins to skin in under 30 minutes and achieves most of its strength within 24 hours, fitting within typical trailer production flow.

Results Achieved

After controlled trials in Wilson Trailer's grain trailer assembly line, the benefits of ForzaBOND OS24 became clear:

- **80% Reduction in Mechanical Fasteners:** The structural adhesive allowed engineers to eliminate the majority of huck bolts along the hopper seams while maintaining (and in some cases improving) structural integrity.
- **Improved Seam Strength:** Because OS24 forms a continuous bonded line across the entire seam—rather than concentrating stress at bolt points—the stress distribution became more uniform.
- **Permanent Sealing:** For the first time, the hopper seams achieved a full environmental seal, preventing water ingress and corrosion beneath the trailer's exterior surfaces.
- **Sustained Performance:** Even under heavy vibration, flexing, and long-term weather exposure, the bonded seams retained integrity and flexibility without cracking or separating.

Wilson Trailer verified after extended field use that the bonded seams maintained both strength and seal quality. The company adopted ForzaBOND OS24 as its standard hopper seam adhesive and has used it exclusively in grain trailer manufacturing for more than 20 years—an enduring validation of both the material and the process.

Why ForzaBOND OS24 Performs

The success of ForzaBOND OS24 lies in its **hybrid polymer technology**, combining strength and elasticity to suit demanding structural applications. The product delivers performance metrics typically associated with two-part epoxies but in a single-component, easy-to-use format. Key technical attributes include:

- Tensile Lap Shear Strength: 700 psi
- Elongation at Break: 300–500%
- Shore A Hardness: 50–55
- Non-sag, non-staining, paintable, and UV-stable formulation
- Wide service temperature range: -75°F to 200°F

These mechanical and environmental properties make OS24 particularly suitable for bonding dissimilar materials and accommodating thermal expansion—critical traits in aluminum trailer assemblies.

The Lasting Impact

By adopting ForzaBOND OS24, Wilson Trailer unlocked a streamlined manufacturing process that enhanced trailer durability and reduced maintenance needs. The solution continues to demonstrate how modern adhesive technology can replace or supplement traditional fastening methods in heavy-duty transportation manufacturing.
ForzaBOND OS24 is now considered a proven bonding and sealing solution for high-stress, high-flex seams—helping manufacturers like Wilson Trailer achieve engineering advances without sacrificing production simplicity.

To learn more about ForzaBOND OS24 performance polymers and applications, contact Forza at info@forzabuilt.com or visit www.forzabuilt.com.