Interlox® 4220

Ti/Zr conversion coating

General Metal Finishing | Paint support technologies | atotech.com



Enduring performance. Ensuring longevity.

Driving durability with advanced coating technology

In automotive manufacturing, tier suppliers are key in producing aluminum components used throughout the vehicle assembly. After casting or stamping, the parts undergo processing after forming – such as heat and surface treatments – to meet performance and durability requirements. For critical structural and safety parts, surface treatment is imperative to ensure its integrity and longevity.

Interlox 4220 is a titanium- and zirconium-based coating process engineered for the rigorous demands of modern aluminum applications. It enhances corrosion, adhesion, and joining characteristics by forming a stable, thin film that resists oxidation and boosts performance of subsequent coatings. Its modifiable process parameters facilitate comprehensive performance across diverse OEM requirements, further exhibiting its versatility.

Features and benefits

- Adaptable process capable of meeting diverse performance requirements
- Exceptional pre- and post-aging adhesive bonding performance
- Low contact resistance per DVS 2929 in as-finished and extended ambient storage conditions
- Low coating weight (< 10 mg/m^2 Ti and Zr)
- Etches and passivates in one step for simplified, controlled surface treatment
- REACH, RoHS and ELV compliant

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One process. Multiple applications. Maximum performance.

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Figure 1-2:
Interlox 4220 is applicable across a variety of components, applications, and industries

Versatile coating for complex aluminum platforms

Engineered for high-performance aluminum components, including structural castings/ gigacastings, battery housings, thermal management components, and body-in-white, Interlox 4220 offers exceptional flexibility to meet a wide range of automotive requirements. Its adaptable process parameters provide a reliable foundation for adhesive bonding, welding, painting, and conversion coating, while maintaining suitability for cast, stamped, and extruded alloys, ensuring seamless integration into diverse manufacturing applications.

Interlox 4220 provides applicators a simplified surface treatment solution for a complex set of requirements. With the ability to etch and passivate in a single chemical step, it compresses the surface treatment sequence reducing chemical demand and equipment footprint. The naturally forming oxide on aluminum surfaces is efficiently displaced by a durable coating with low contact resistance which is critical for welding applications. This stable thin deposit provides exceptional structural adhesive bonding strength.

Leading performance in adhesion and bonding

In the pursuit of weight reduction and manufacturing simplification, automotive companies have increasingly relied on adhesives as a replacement or complement to welding and fastening. Having a robust passivation layer is critical to ensure that the adhesive bond remains intact through a wide array of environmental conditions. The implementation of adhesives further mitigates the potential for galvanic corrosion by creating an insulating barrier layer between dissimilar materials.

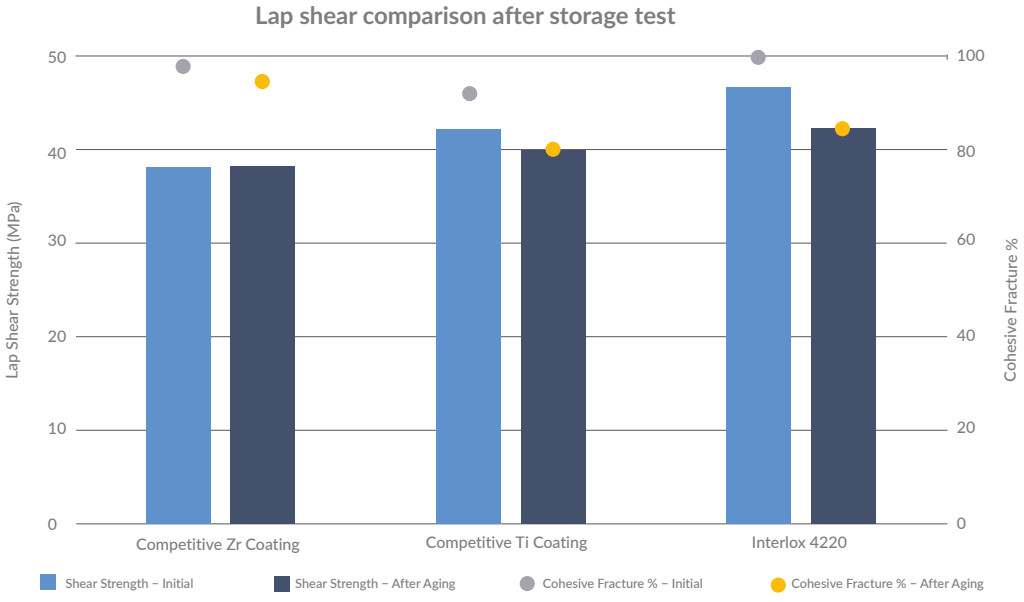

Diagram 1: Interlox 4220 exhibits superior bond strength against benchmark surface treatments in before and after environmental aging evaluations.