

IS DURABLE BOND TO A COATED SURFACE POSSIBLE?

A frequently asked question is whether a durable adhesive bond can be achieved on substrates that are protected with a coating or paint system, especially in environments exposed to moisture, chemicals, or corrosion.

The answer is: yes, but with important considerations.

Protective coatings are primarily designed to shield the substrate against corrosion and environmental influences. In most cases, however, these coatings are not engineered to carry structural loads or withstand long-term tensile and shear stresses generated by adhesive bonding.

This means that even if an adhesive shows excellent adhesion to the coating itself, the overall performance of the bonded connection ultimately depends on the strength of the coating's adhesion to the underlying substrate — often steel or Aluminium.

Testing and Validation

Through laboratory testing and practical validation, we can determine whether a specific adhesive system can create a durable bond to a coated surface. However, the weakest link in the system remains the coating layer itself.

If the coating detaches from the substrate, the adhesive bond will fail accordingly.

Our Recommendation for Maximum Reliability

For structural or long-term bonding applications exposed to:

- thermal expansion and contraction,
- mechanical loads and vibrations,
- humidity or aggressive chemicals,

We strongly recommend removing all paint or coating layers in the bonding zone.

Optimal surface preparation typically includes:

- complete coating removal,
- thorough cleaning and degreasing,
- light abrasion or sanding where required.

These preparation steps significantly improve adhesion performance and help ensure a safe, stable and durable bonded connection over time.

The Result: Higher Performance and Long-Term Security

Correct surface preparation is one of the most critical factors in successful adhesive bonding. By bonding directly to a properly prepared substrate instead of a potentially weak coating layer, the reliability and lifespan of the connection can be dramatically increased.