

Factors for consideration when bonding composite materials

Composites continue to be the subject of rapid advancement in terms of formulation, production and types of applications. Incorporating composites in your assemblies requires adhesives that contribute to the highest possible performance and reliability, exploit their qualities of strength and light weight and meet the demanding conditions of the automotive, defence, aerospace, marine, medical, electronics/electrical, sports and other applications in which these materials are increasingly being used.

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Choosing an adhesive

The first thing to consider when selecting an adhesive for bonding composites is what materials form the constituent parts of the composite. For instance, when working with PA66, a composite made up of glass and nylon, we would first look at adhesives compatible with glass and/or nylon bonding. From there, factors including the area of the bond, bondline design, vibration and moisture in the operating environment, and manufacturing and operating temperatures affect what adhesive(s) might be suitable.

We supply a range of engineering adhesives and sealants that are compatible with many composites, providing high strength and impact resistance, adding minimal weight to the finished assembly and enabling bonding of dissimilar materials. Many of our customers have found [methacrylate adhesives](#) in particular to be a good fit for bonding composites.

No matter what compound you select, we always suggest thorough testing to ensure suitability within your application, prior to production.

Improving adhesion

Many composites, such as a polymer matrix of carbon fiber reinforced materials, can have poor adhesion characteristics. In this case, we often recommend atmospheric plasma treatment, which can be easily integrated into the bonding process. The plasma treatment activates the surface on your substrate to increase adhesive strength. For example, plasma surface treatment using a [Relyon PiezoBrush PZ3](#) can quadruple the strength of a composite based on a PA6 matrix.

Our technical sales team would be happy to discuss adhesives and surface treatment options for your particular application.

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