

## TECHNICAL BULLETIN

# WHAT ADHESIVE WORKS BEST FOR YOUR APPLICATION?



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Choosing a suitable adhesive for your bonding application can be challenging. Adhesives have different formulation characteristics to ensure excellent adhesion to substrates; they are formulated to withstand different temperatures and chemical resistance. Acrylics, anaerobic, cyanoacrylates, epoxies, urethanes, and silicones are the most common glues. Adhesives are used for medical devices, electronics, aerospace, automotive, packaging, and more.

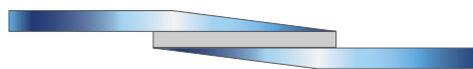
Ellsworth Adhesives will guide you with the following key factors to select the best adhesive for your application:

### Joint Design

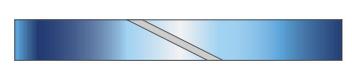
Joint design is the most crucial factor in determining overall joint strength. The objective is to obtain the maximum strength for a given area to bond. Joints for adhesive bonding must be designed especially for adhesives and created to minimize peel or cleavage-loading conditions.



Simple Lap Joint



Tapered Lap Joint



Scarf Joint



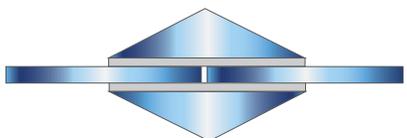
Butt Joint



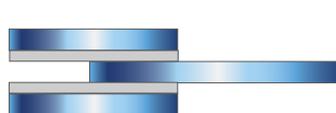
Strap Joint



Double Strap Joint



Tapered Double Strap Joint



Double Lap Joint



Stepped Lap Joint

## Know Your Substrate

Know what you are bonding. Every substrate has different properties and will react in different ways. Most adhesives will bond to dissimilar materials, but some are more challenging to bond. A surface preparation process may be required if you work with low surface energy (LSE) substrates. It is essential to understand the surface energies of all substrates in your assembly and how well the adhesive will wet out each. Remember that most bonds require the substrates to be clean and appropriately prepared.

## Understand What Stress the Bond Must Withstand

The force needed to pull the bond apart allows engineers to understand how the adhesive will perform in an application. Pulling an adhesive bond apart is the most common way to measure the strength of adhesion.



## Calculate How Much Open Time You Must Put Your Part in Place

Once we identify what kind of adhesive will bond to your substrate, knowing the amount of time for your bonding application will be critical to determining which glue to choose. Depending on the chemistry of the adhesive, we will have to calculate a cure time or set time to move to the next stage of your manufacturing process.

## Optimal Characteristics Required from Your Adhesive

Factors to consider for optimal adhesive in your process are strength, cure or set time, flexibility, viscosity, hardness, color, UV stability, health risk, temperature, chemical resistance, and regulations. Adhesive manufacturers have different formulas to suit your bonding application.

## Sum Up Your Application Spend

Meeting your bonding needs before looking at the cost is critical. There are many factors to consider to increase throughput and efficiency to reduce rework or scrap to keep your manufacturing cost on budget. We can help you calculate all variants, including dispensing and curing equipment, and guide you to an optimal bonding application tailored to your manufacturing process and product requirements.

The Ellsworth Adhesives experts work with industry-leading material and equipment suppliers and you to develop an assembly process that meets your needs.

We are a global distributor of adhesives, specialty chemicals, and dispensing equipment with expansive stocking capabilities with temperature-controlled storage in strategic locations to assist with product selection and integration into your manufacturing process. Ellsworth Adhesives is CUSECO, ISO 9001 & AS9120B Certified, REACH & RoHS Compliant & ITAR Compliant.

## Ask the Glue Doctor®

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