THE DIFFERENCE BETWEEN ADHESIVES AND SEALANTS

Though some sealants and adhesives may be used in similar circumstances, they are never used the same thing. The two are very different indeed.

- Naturally, as its name suggests, sealants seals spaces that exist between one surface to the next. When a sealant is used the space becomes air and water tight.
- Adhesives on the other hand are primarily used to bond materials together.

In common, sealants don't usually have enough adhesion ability to hold two surfaces together. They are not used as primary bonding materials and are subject to creep under load.

These two products differ on several scales. The main differences between adhesives and sealants are strength, and other physical characteristics associated with strength. Generally, adhesives have higher strength and lower elongation at break than sealants: adhesives are generally over 1000 psi lap shear while sealants are less than 1000 psi lap shear.
Adhesive have more power for holding and bonding, and sealants are great for air and water tight spaces and should not be used to bond things together.
Consequently, adhesives are more rigid and durable than sealants, since they're designed to keep two surfaces stuck to each other over long periods of time strongly enough so they can't be separated. They have a more highly cross-linked, more complex molecular structure than that of sealants, which aids their ability to grip and bind surfaces together. They also have greater cohesiveness, which results in higher strength values.
To put it quite simply adhesive is doing things together were sealants protect. Even though it seems they're working in very similar ways, they are intended for very different purposes.

What are the different uses for adhesives and sealants?
When deciding what type of adhesive or sealant to choose, engineers must ask themselves several different questions to identify how it will be used in their applications.
Initial questions include what is the material the object being bonded is made of and what conditions does it need to survive?

- First, is it a structural or a non-structural bond? Does the bond have to support a load-bearing object? In that case a structural adhesive is required.
- Next, what are the substrate materials, and the thermal and environmental conditions the bond must withstand? Environmental conditions may include the types of stresses — compressive, tensile or torsion, intermittent or constant — and the load, operating temperature, and chemical exposure a bond will be used in.
- Other considerations may include bonding substrates with different mechanical properties, such as different elongations under stress or different coefficients of thermal expansion. Additional conditions for adhesives may include different types of surface preparation required, whether the bond gap must be thin or thick, whether the part is horizontally or vertically oriented, required working life and application equipment, and what kind of curing is needed.

All of these, and other considerations, are assessed with the formulation, production and application of the TWEHA adhesives, firstly meant for cladding only.

TWEHA, 2020