WHAT IS A LIGHT-ACTIVATED ADHESIVE?

ADVANCED TECHNOLOGY FOR RESEARCH & INDUSTRY

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- SCOPE: A simple introduction to and understanding of light-activated adhesives

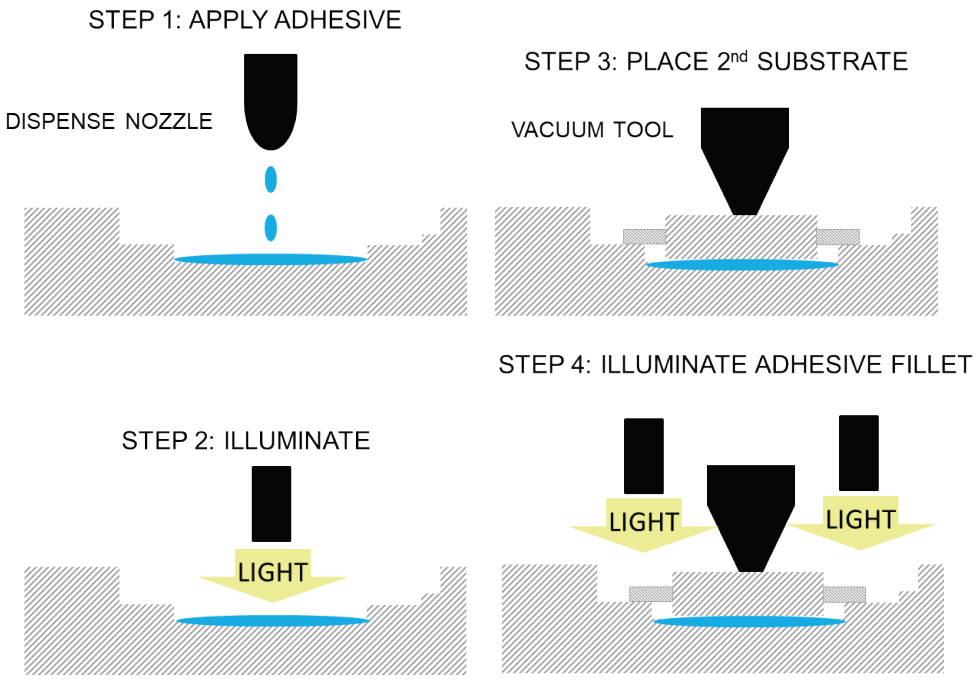
A light-activated adhesive is used to bond non-transparent materials together without using an additional mechanism to cure the adhesive in the shadow zone between the two substrates.

Whether the adhesive is an epoxy or an acrylate, the principle is the same: apply the adhesive to the first substrate, illuminate the adhesive with high-intensity light, and join the second substrate. The adhesive between the substrates will cure completely over time. Optionally, the cure time can be accelerated, either by adding heat (for every 10 degree rise in temperature above RT, the cure time halves), or, if a fillet of adhesive is visible around the edge of the bond area, further illumination for just a few seconds can significantly increase the handling strength.

Light-activated epoxies have been around for over twenty years, but recent innovations have now produced light-activated acrylates. While the end result is the same, i.e. full cure of an adhesive between non-transparent parts, the different acrylate chemistry results in significantly more flexible bonds, making them ideal for stress-sensitive applications.

Light-activated adhesives are generally shipped and stored at room temperature, therefore avoiding the necessity of dry ice during shipping (which can result in significantly reduced transport costs and which also expands the number of couriers who will carry these adhesives). This also means that expensive industrial freezers are not required, reducing energy bills and freeing up valuable storage space within manufacturing facilities.

A much more comprehensive explanation concerning all aspects of light-activated adhesives is also available on Inseto's website (HERE), but this is a pictorial explanation of the process of using light-activated adhesives:



EAMONN REDMOND
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